

HELMINTHOLOGICAL ABSTRACTS

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For the Year 1948

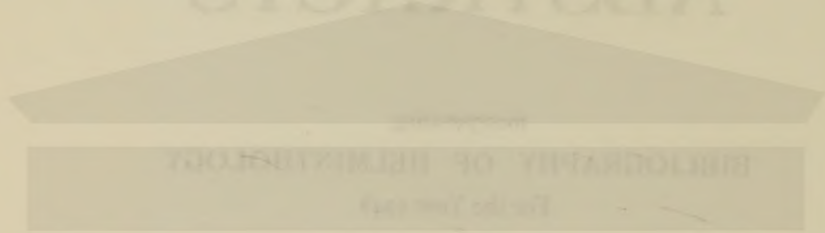


COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

Winches Farm Drive, Hatfield Road,
St. Albans, England.

May, 1949

HELMINTHOLOGICAL
ABSTRACTS



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Wentworth Farm, Wellesbourne, Staffs.
St. Albans, England.

HELMINTHOLOGICAL ABSTRACTS

Vol. 17, Part 2

1948

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HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1948

Vol. 17, Part 2

59—Acta Tropica. Basel.

- a. KREIS, H. A., 1948.—“*Bilharzia* oder *Schistosoma*? Ergänzen-
de Mitteilung zur Bemerkung H. A. Kreis in Acta Tropica Vol. 4, 259–260, 1947.” 5 (1), 87–88.

(59a) As a supplement and correction of his former declaration that the first use of *Bilharzia* by Meckel von Hemsbach in 1856 had not been proven [see Helm. Abs., 16, No. 168a], Kreis now publishes a letter from Vogel giving the necessary evidence. Vogel quotes a passage from Meckel's “Mikrogeologie”, published posthumously in 1856 by Billroth, in which *Distomum haematobium* is renamed *Billharzia*. The question of whether *Schistosoma* should now be removed from the list of official names under Opinion 77 of the International Commission on Zoological Nomenclature has been referred by Vogel to the Commission. [For abstracts of this reference and of the comment by the Secretary of the Commission, see Helm. Abs., 16, Nos. 14a & 14b respectively. No decision has yet been announced.]

E.M.S.

60—Aerztliche Wochenschrift. Berlin.

- a. SCHUBERT, R., 1948.—“Alte und neue Vorschläge zur Eindämmung der Askaridenverseuchung.” 3 (5/6), 71–74.
b. KALK, H., 1948.—“Ein Fall von Infektion des Menschen mit dem grossen Leberegel.” 3 (5/6), 88–89.

(60a) Post-war conditions in Germany have led to increased incidence of human ascariasis. The use of human faeces as fertilizer and the consumption of unwashed and uncooked vegetables are the most important factors responsible for this increase. Schubert emphasizes that human faeces should never be used as manure in kitchen or market gardens. Vegetables should preferably be eaten cooked but if this is not possible they should be soaked in hypertonic solutions of common salt. Care should be taken to ensure that the vegetables are kept well below the surface of the water by means of a grid or sieve so that *Ascaris* eggs can be poured off after they have risen to the surface.

A.E.F.

61—Agricultural Chemicals. Baltimore.

- a. MILLER, P. R., 1948.—“Current plant disease conditions in U.S.” 3 (1), 45, 47.

(61a) Benzene hexachloride had no appreciable effect on root-knot infestation in sandy loam with low organic content in North Carolina, even at rates which were extremely phytotoxic. The soil moisture was fairly high and the temperature at a depth of three inches was 86°F. at the time of application.

R.T.L.

62—Agricultural Gazette of New South Wales.

- a. FIELDER, F. G., 1948.—“Large round worm infestation in fowls.” 59 (6), 330–333.

(62a) Fielder reviews briefly the structure and life-history of *Ascaridia galli* and gives in detail a method of treatment with carbon tetrachloride. Other drugs are less successful. The usual preventive methods are described.

P.A.C.

63—American Journal of Hygiene.

- a. PAPIRMEISTER, B. & BANG, F. B., 1948.—“The *in vitro* action of immune sera on cercariae of *Schistosoma mansoni*.” 48 (1), 74–80.

(63a) A precipitate formed *in vitro* within three hours around the cercariae of *Schistosoma mansoni* in sera of man infected with *S. haematobium*, *S. mansoni*, or *S. japonicum*. A similar result was obtained with sera of monkeys infected with *S. mansoni* or *S. japonicum*. Fresh sera gave the best results. Heating of the serum to 56°C. for half-an-hour destroyed its activity, but this was restored by the addition of fresh guinea-pig serum, suggesting that complement may be involved. R.T.L.

64—American Journal of Tropical Medicine.

- a. SCOTT, J. A., 1948.—“Studies on the transmission of the filarial worms of the cotton rat.” 28 (3), 481–485.
 b. GELFAND, M., 1948.—“Bilharzial disease of the bladder as determined at autopsy, with particular reference to its diagnosis by mucosal snips.” 28 (4), 563–566.
 c. BAUMAN, P. M., BENNETT, H. J. & INGALLS, Jr., J. W., 1948.—“The molluscan intermediate host and schistosomiasis japonica. II. Observations on the production and rate of emergence of cercariae of *Schistosoma japonicum* from the molluscan intermediate host, *Oncomelania quadrasi*.” 28 (4), 567–575.
 d. THETFORD, N. D., OTTO, G. F., BROWN, H. W. & MAREN, T. H., 1948.—“The use of a phenyl arsenoxide in the treatment of *Wuchereria bancrofti* infection.” 28 (4), 577–583.
 e. FINK, H., 1948.—“A helminth survey from an autopsy series on natives of Okinawa, with comments on complications of ascariasis.” 28 (4), 585–588.

(64a) For chemotherapeutic studies and immunity studies in filariasis, using cotton rats infected with *Litomosoides carinii*, the use of wild naturally infected rats is deprecated. The need is obvious for employing rats having constant numbers of worms of about the same age, if legitimate conclusions are to be drawn from the results of such experimental studies. The author gives a detailed account of a method of infecting rats, with this end in view, and the results obtained were encouraging; but he points out that there is need for still further refinement of the method, especially for studies on immunity. He discusses the various factors which are involved in the variability of the number of worms resulting from exposure of rats to infection, their relative importance, and the possible lines of procedure which would obtain further improvement of the method in the light of the analysed results. J.J.C.B.

(64b) A diagnosis of vesical bilharziasis cannot be excluded, even should the bladder appear normal on cystoscopic examination. Of 50 bladders removed consecutively at autopsy, 16 which were apparently normal gave schistosome eggs after digestion of the whole viscera; the remaining 34 showed macroscopic lesions. Snips from 9 out of 10 of the apparently normal bladders were positive for *Schistosoma haematobium* eggs. Gelfand therefore suggests that biopsy may give valuable information. R.T.L.

(64c) The natural emergence of *Schistosoma japonicum* cercariae from *Oncomelania quadrasi* at Leyte, Philippine Islands, is cyclic and is definitely nocturnal with the peak of production between 9 p.m. and 11 p.m. Artificial light and darkness and variations in the temperature of the water from 19°C. to 30°C. had little influence. A critical factor was the alkalinity of the water, the optimum pH being 7.6. The infection rate of molluscs collected during July and August was 10% at Palo and 13.8% at Atogan. R.T.L.

(64d) Arsenamide and mapharsen both gave dramatic reductions in the microfilaria counts in patients infected with *Wuchereria bancrofti*. The former drug, as a 2% phosphate buffered solution of its sodium salt, was given in daily intravenous doses of 0.05 c.c. (1 mgm. of the drug) per kg. body-weight. Of mapharsen the daily dose was 0.06 gm. Previous inconclusive results are attributed to the long intervals which were allowed between the individual doses. R.T.L.

(64e) The incidence of helminths observed during 120 autopsies on natives of Okinawa is tabulated. Multiple infections were frequent. Hookworm 45.8%, *Ascaris* 25.8%, *Trichuris* 8% and one case each of *Hymenolepis nana* and of *H. diminuta* are recorded. *Ascaris* migration into the biliary tract was observed twice, and hepatic infarction is reported as a hitherto undescribed complication.

R.T.L.

65—American Midland Naturalist.

- a. SEAMSTER, A., 1948.—“Gill parasites from Louisiana fishes with a description of *Urocleidus wadei* n.sp.” 39 (1), 165–168.
- b. RAUSCH, R., 1948.—“*Dendrouterina botauri* n.sp., a cestode parasitic in bitterns, with remarks on other members of the genus.” 39 (2), 431–436.
- c. RAUSCH, R. & TINER, J. D., 1948.—“Studies on the parasitic helminths of the North Central States. I. Helminths of Scuridae.” 39 (3), 728–747.
- d. OLSEN, L. S., 1948.—“A new trichostrongylid nematode from the pika, *Ochotona princeps figginsi*.” 39 (3), 748–753.
- e. HANSEN, M. F., 1948.—“*Schizorchis ochotonae* n. gen., n.sp. of anoplocephalid cestode.” 39 (3), 754–757.

(65a) Seamster tabulates the eleven species of Monogenea collected from the gills of ten species of fish taken from swamp pools and bayous near Monroe and Tremont, Louisiana. There are a number of new host and distribution records. *Urocleidus wadei* n.sp. is described from *Centrarchus macropterus*; it differs from *U. acer* in having a smaller body, smaller anchors and a longer broadly coiled cirrus.

R.T.L.

(65b) The genus *Dendrouterina* Fuhrmann, 1912, is revised. *D. lintoni* and *D. nycticoracis* are transferred to *Dilepis*. Only two species, viz., *D. herodiae* (the type species) and *D. botauri* n.sp. remain. *D. botauri*, described from *Botaurus l. lentiginosus* and *Ixobrychus e. exilis*, differs from *D. herodiae* in the formation of the uterus, and it has apparently a larger number of testes. There are no chitinous spines in the atrium.

R.T.L.

(65c) The helminths of 325 squirrels collected from Ohio, Michigan, Illinois, Wisconsin and Minnesota are tabulated, and brief notes on each of the 33 species are given in the accompanying text. In several cases there is no specific identification. None are described as new.

R.T.L.

(65d) A new genus *Graphidiella* is created for *Graphidiella ochotonae* n.sp. as this differs from other *Graphidiinae* in possessing three bulbs in each ovejector. *G. ochotonae* was collected from the stomach of *Ochotona princeps figginsi* at the Rocky Mountain Biological Laboratory, Colorado.

R.T.L.

(65e) *Schizorchis ochotonae* n.g., n.sp. was collected from the pika or rockrabbit, *Ochotona princeps figginsi* in Colorado. The genus is differentiated from *Schizotaenia*, which it closely resembles, and from *Cittotaenia* by its unarmed cirrus.

R.T.L.

66—American Potato Journal.

- a. McCUBBIN, W. A., 1948.—“Present status of the golden nematode of potato.” [Summary of report presented to the New Jersey Potato Growers' Association, Trenton, New Jersey, January 29, 1948.] 25 (4), 131–133.

(66a) In this brief summary of a report presented to the New Jersey Potato Growers' Association in January 1948, McCubbin deals with the surveys, methods of control and quarantine measures undertaken in connection with the potato root eelworm, *Heterodera rostochiensis*. The surveys have revealed infestation in 6,000 acres, none outside Long Island. No fumigant has given completely satisfactory control of the nematode in the soil. Tubers have been partly disinfested by washing and brushing; fumigation with methyl bromide is liable to damage them; warm-water baths with the addition of ammonia show promise but require further investigation. The strict quarantine measures adopted have greatly reduced the danger of spread of the parasite.

M.T.F.

67—Anales del Instituto de Biología. Mexico.

- a. CABALLERO Y C., E., 1948.—“Sexta contribución al conocimiento de la parasitología de *Rana montezumae*.—Redescripción de *Halipegus amherstensis* Rankin, 1944.” (1947), 18 (2), 473-477.
- b. CABALLERO Y C., E., 1948.—“Estudios helmintológicos de la cuenca del Río Papaloapan. I. Descripción de un nuevo género de strigeido.” (1947), 18 (2), 479-487.
- c. BRAVO HOLLIS, M., 1948.—“Dos especies de *Clinostomum* (Trematoda), de aves procedentes del Estado de Nuevo León, México.” (1947), 18 (2), 489-498.
- d. BRAVO HOLLIS, M., 1948.—“*Gordiorhynchus microcephalus*, n.sp., acantocéfalo parásito de un pájaro (*Cassidix mexicanus mexicanus* Gmelin).” (1947), 18 (2), 499-506.
- e. ZERECERO Y D., M. C., 1948.—“Posición sistemática de *Diplostomum brevis* y *D. cinosterni* MacCallum, 1921, y descripción de un nuevo tremátodo parásito de *Chelydra serpentina* (L.).” (1947), 18 (2), 507-516.

(67a) Caballero y C. has examined specimens of *Halipegus amherstensis* from *Rana montezumae* and gives a fuller description than was originally given by Rankin. He believes now that the species *H. lermensis* should be incorporated within *H. occidualis*, of which it therefore becomes a synonym. P.A.C.

(67b) Caballero y C. describes *Massoprostatum longum* n.g., n.sp., a strigeid parasite of the intestine of *Crocodylus moreletii* in Veracruz. The characters of the genus are: small pharynx, oesophagus elongated; testes behind the ovary with Mehlis' gland lying between them, ovary usually displaced to one side; genital ducts well developed and sinuous, vitelline glands extensive in the posterior section of the body. P.A.C.

(67c) Bravo Hollis gives full descriptions of *Clinostomum heluans* Braun, 1899 from *Ardea herodias* and of *C. intermedialis* Lamont, 1920 from *Phalacrocorax penicillatus*. She was unable to see the double uterine sac described by Lamont in *C. intermedialis*. P.A.C.

(67d) Bravo Hollis describes *Gordiorhynchus microcephalus* n.sp., an acanthocephalan from *Cassidix mexicanus mexicanus* in Puebla. It can be distinguished by the relationship of the receptaculum to the proboscis, by the size of the lemnisci and by the structure of the hooks. P.A.C.

(67e) *Herpetodiplostomum delillei* n.sp. is a parasite of the small intestine of *Chelydra serpentina* in Veracruz. Distinguishing characters are the distribution of the vitelline glands and the position of the testes. She considers that the species *Diplostomum brevis* and *D. cinosterni* should be transferred to the genus *Herpetodiplostomum*. P.A.C.

68—Animal Health Leaflet. Ministry of Agriculture and Fisheries. London.

- a. ANON., 1948.—“Fluke or liver rot in sheep.” No. 6, 6 pp. [Revision of *Adv. Leaflet. Minist. Agric. Fish., Lond.*, 1942, No. 310.]

69—Annales de Parasitologie Humaine et Comparée.

- a. DUBOIS, G., 1948.—“Sur trois diplostomes de crocodiliens (Trematoda: Strigeida).” 23 (1/2), 5-13.
- b. DOLLFUS, R. P., 1948.—“Distome énigmatique dans la vésicule biliaire de la tanche commune, *Tinca tinca* (L.) à Richelieu (Indre-et-Loire).” 23 (1/2), 14-17.
- c. FONSECA, F. DA & FRAGA DE AZEVEDO, J., 1948.—“Un cas humain de fasciolase hépatique.” 23 (1/2), 18-22.
- d. GALLIARD, H., 1948.—“Infestation naturelle des batraciens et reptiles par les larves plérocercoides de *Diphyllobothrium mansonii* au Tonkin.” 23 (1/2), 23-26.

(69a) According to Dubois the genus *Pseudoneodiplostomum* now contains five palaeotropical species including *P. dollfusi* n.sp. from *Crocodylus siamensis*. *Neodiplostoma* sp. of Dollfus, 1935 is made a new variety of *P. thomasi* and named *P. thomasi gabonicum* n.var.; it occurred in *C. cataphractus*. There is a key to the genus. Detailed measurements of *Cystodiplostomum hollyi* Dubois, 1936 are now provided. R.T.L.

(69b) Dollfus describes and illustrates a distome found in the gall-bladder of *Tinca tinca*, and discusses its systematic position without reaching any conclusion owing to the meagre material available. R.T.L.

(69c) The first case of infection with *Fasciola hepatica* in a native of Funchal, Madeira is recorded. R.T.L.

(69d) In Tonking the plerocercoids of *Diphyllobothrium mansonii* occur in *Rana tigrina*, *R. limnocharis*, *Tropidonotus piscator*, and infrequently in *Bufo melanostictus* and *Hypsirrhina enhydryis*. Of amphibians *Rana tigrina* is the most commonly infected, ranging from 2% in December to 82% in July with a yearly average of 60%. Individuals harbour between 4 larvae in December and 76 in July. *Tropidonotus piscator* is invariably infected, harbouring up to 80 specimens. R.T.L.

70—Annals and Magazine of Natural History.

- a. DUTHY, B. L., 1948.—“Three new nematodes of the genus *Oesophagostomum* from the East African wart-hog, *Phacochoerus aethiopicus*.” Ser. XI, 14 (112), 280–288.
- b. BAYLIS, H. A., 1948.—“On two nematode parasites of fishes.” Ser. XI, 14 (113), 327–335.
- c. BAYLIS, H. A., 1948.—“*Taenia* 'exigua' Dujardin.” Ser. XI, 14 (113), 353–358.

(70a) *Oesophagostomum mpwapwae* n.sp., *O. aethiopicum* n.sp. and a new variety of *O. yorkei* named *wildei* are described from the wart-hog, *Phacochoerus aethiopicus*. Miss Duthy does not accept the division of this compact genus into subgenera as suggested by leRoux. *O. mpwapwae* has longer spicules and a much longer vagina than *O. oldi* which it closely resembles. *O. aethiopicum* has two leaf-crowns with six elements as compared with *O. eurycephalum* which has one leaf-crown with 26 elements. The new variety *wildei* differs from *O. yorkei* only in that the anterior edge of the buccal capsule is indented, not straight. R.T.L.

(70b) Baylis redescribes and illustrates *Philonema oncorhynchi* from an Arctic char, *Salvelinus alpinus*, from East Greenland. He gives a table showing that the specimens examined are intermediate in measurements between *P. oncorhynchi* and *P. agubernaculum*, which are probably synonymous. Cephalic papillae not hitherto described were observed. “Amphids” were present. There were at least two pairs of very small pre-anal and six pairs of post-anal papillae. A short systematic description is also given of *Dichelyne*(?) *laticeps* n.sp. from the intestine of the spotted toadfish, *Tetraodon hispidum*. R.T.L.

(70c) Baylis assigns to *Choanotaenia* some specimens of *Taenia exigua* Dujardin, 1845 collected from English wrens (*Troglodytes troglodytes*) and gives a detailed and illustrated account of them. It may be differentiated from other European species of *Choanotaenia* by the number and size of the rostellar hooks or by the testes which are relatively large and number 10–12. R.T.L.

71—Annals of the New York Academy of Sciences.

- a. COGGESHALL, L. T., 1948.—“Filariasis.” 50 (2), 21–26.
- b. HEWITT, R. I., 1948.—“General experimental methods used in studying filaricides.” 50 (2), 27–38.
- c. OTTO, G. F. & MAREN, T. H., 1948.—“Use of arsenicals in filariasis.” 50 (2), 39–50.
- d. BROWN, H. W., 1948.—“Treatment of filariasis with anthiomaline (lithium antimony thiomalate).” 50 (2), 51–72.
- e. CULBERTSON, J. T., 1948.—“Treatment of filariasis with neostibosan and some other compounds.” 50 (2), 73–88.
- f. BARTTER, F. C., BURCH, T. A., COWIE, D. B., ASHBURN, L. L. & BRADY, F. J., 1948.—“Experimental therapy of onchocerciasis with trivalent antimonials.” 50 (2), 89–96.
- g. ROSE, H. M., 1948.—“Tolerance of antimony and arsenic by intensively treated patients.” 50 (2), 97–107.
- h. BROOKER, L. G. S., 1948.—“Chemistry of the cyanine dyes.” 50 (2), 108.
- i. WRIGHT, H. N., LITCHFIELD, Jr., J. T., BREY, T., CRANSTON, E. M., CUCKLER, A. C. & BIETER, R. N., 1948.—“Chemotherapeutic activity of cyanines and related compounds in filariasis in the cotton rat.” 50 (2), 109–114.
- j. BUEDING, E., 1948.—“Effect of cyanine dyes on the metabolism of *Litomosoides carinii*.” 50 (2), 115–116.
- k. PETERS, L., 1948.—“Antifilarial action, toxicology, and clinical trial of cyanine dyes in filariasis.” 50 (2), 117–119.

- l. KUSHNER, S., BRANCONE, L. M., HEWITT, R. I., McEWEN, W. L. & SUBBAROW, Y., 1948.—“The chemistry of piperazine compounds in the chemotherapy of filariasis.” 50 (2), 120-127.
- m. HEWITT, R. I., WHITE, D. E., KUSHNER, S., WALLACE, W. S., STEWART, H. W. & SUBBAROW, Y., 1948.—“Parasitology of piperazines in the treatment of filariasis.” 50 (2), 128-140.
- n. HARNED, B. K., CUNNINGHAM, R. W., HALLIDAY, S., VESSEY, R. E., YUDA, N. N., CLARK, M. C. & SUBBAROW, Y., 1948.—“Some toxicological and pharmacological properties of 1-diethylcarbamyl-4-methylpiperazine hydrochloride, Hetrazan.” 50 (2), 141-160.
- o. SANTIAGO-STEVENSON, D., OLIVER-GONZALEZ, J. & HEWITT, R. I., 1948.—“The treatment of filariasis bancrofti with 1-diethylcarbamyl-4-methylpiperazine hydrochloride (Hetrazan).” 50 (2), 161-170.

(71a) In a general introduction to a series of papers on filariasis at a conference held by the Section of Biology of the New York Academy of Sciences in October 1947, Coggeshall estimates that 1,800,000 to 2,000,000 persons of the world population are infected. During the slave trade period, filariasis was prevalent in the south-eastern U.S.A., particularly in the region of Charleston, South Carolina, and extended as far as Indiana; little or no infection has been reported since 1925. Coggeshall points out that *Wuchereria bancrofti* requires a mean temperature of about 80°F. and an average humidity of 60% or over, and that there are very few areas in the U.S.A. where these climatic essentials prevail. Since all diseases of high morbidity and low mortality are matters of indifference to the general public, little success can be expected from efforts to control the disease by the eradication of the vectors: hence an effective chemotherapeutic agent would be a welcome adjunct to the efforts of public health workers. R.T.L.

(71b) Hewitt summarizes methods now in use for evaluating the effect of drugs on naturally acquired filarial infections in cotton rats and for *in vitro* studies and bioassay of filaricides in dogs with *Dirofilaria* infections. Tables give the microfilarial counts at stated intervals in untreated cotton rats. The numbers present in the peripheral blood are not always correlated with the degree of infestation with adults. For screening purposes the starting dose of new drugs was 200 mg. per kg. body-weight for oral administration or 50 mg. per kg. intraperitoneally. If the animal died the dose was halved until the test animals survived and the results were negative, or until positive results followed a tolerated dose. Treatment continued twice daily for 2-4 weeks, and 1-4 weeks after its cessation an autopsy was made. Plasmochin, some arsenicals and several piperazine compounds reduce the number of peripheral microfilariae; others like neostam, neostibosan and stibanose produce the same effect by killing the adults. The microfilarial count is a useful adjunct to the total evaluation of filaricidal action, but cotton rats with initial counts of less than 10 per 100 fields are not reliable owing to fluctuations in the counts. There was little correlation between the *in vitro* and *in vivo* activity when piperazine compounds were used, but correlation was relatively high with the cyanine dyes. The difficulties presented by the use of *Dirofilaria*-infected dogs are set out. R.T.L.

(71c) The trivalent organic arsenicals and particularly the substituted phenyl arsenoxides are actively filaricidal in canine and human infections. One of these, arsenamide, killed the adult *Dirofilaria immitis* in doses easily tolerated by dogs, the minimum effective dose being 0.2-0.23 mg. per kg. body-weight daily for two weeks. It did not kill the microfilariae of *Litomosoides carinii* or of *Dirofilaria immitis* even at higher doses. It destroyed the microfilariae of *Wuchereria bancrofti* in man at similar dose rates, but its effects on the adults have not been ascertained. R.T.L.

(71d) From 85-100% of the microfilariae of *Wuchereria bancrofti* were killed by 10-20 c.c. of anthiomaline, administered intramuscularly at the rate of 3 c.c. daily. In dogs the microfilarial count was also markedly reduced. It is thought that the adult females were temporarily sterilized. A certain degree of toxicity may limit the usefulness of this drug. R.T.L.

(71e) Culbertson reports the results of an experimental study of the chemotherapy of Bancroftian filariasis on 114 Puerto Ricans. Thirty-five received neostibosan, 11 neostam, 6 urea stibamine, 5 stibanose, 15 fouadin, 20 anthiomaline, 4 tartar emetic and 18 melarsen

oxide. Of these neostibosan was well tolerated and had a markedly destructive effect on the parasites: 27 out of the 35 cases treated were freed from infection, and were kept under observation for over 26 months. Severe reactions were frequent in the cases treated with the various drugs. Culbertson concludes that practical therapy of filariasis must await the discovery of a filaricidal drug which is safer to use and which is effective in shorter time. R.T.L.

(71f) There was no decrease in the numbers of microfilariae in the skin, or in the motility of adults taken by biopsy from nodules, in cases of onchocerciasis which had been treated with stibophen or with tartar emetic. A total of 11 mg. per kg. body-weight was given in the majority of the cases. The nodules were removed for examination 1-5 days after the conclusion of the treatment. R.T.L.

(71i) This paper gives a detailed account of the cyanine and related compounds, over 60 in number, which were tested for filaricidal activity in wild cotton rats naturally infected with *Litomosoides carinii*. The compounds 1,1'-di-B-ethoxyethyl-2,2'-carbocyanine chloride and its *p*-toluene sulphonate were effective in curing this infection when given intraperitoneally in doses of 0.0167 mg. per kg. body-weight every eight hours for 18 doses or 0.05 mg. per kg. once daily for six days. The essential structural grouping for filaricidal activity is a quaternary and a tertiary nitrogen pair separated by an uneven number of carbon atoms containing alternate single and double bonds. Any interference with this resonating system reduces or destroys filaricidal activity. R.T.L.

(71j) The curative action of the cyanine dyes in filariasis of the cotton rat is due to their inhibitory effect on the respiratory metabolism of the parasites. This occurs with low concentrations of all compounds having the amidinium ion system in which a positively charged quaternary nitrogen is linked to a tertiary nitrogen by a conjugated chain of at least three carbons in length. Any modification which abolishes the possibility of amidinium ion resonance results in a disappearance of high activity *in vitro*. R.T.L.

(71k) The cyanine dye (1-amy1-2,5-dimethyl-3-pyrrole) (1,6-dimethyl-2-quinoline) dimethincyanine chloride (Chemotherapy Center No. 348) consistently killed all *Litomosoides carinii* present in the pleural cavity of cotton rats when injected intraperitoneally every 24 hours for 5 doses (0.2 mg. per kg. body-weight per dose). No lethal effect was produced on *Dirofilaria immitis* in dogs but there was a marked reduction in the microfilarial count after a single dose. When given by mouth or subcutaneously only occasional cures resulted. With 1-ethyl-3,6-dimethyl-2-phenyl-4-pyrimido-2-cyanine chloride (compound No. 863) cures invariably followed doses of 1 mg. per kg. repeated 3-6 times at intervals of 1, 3 or 7 days, but in cases of *Wuchereria bancrofti* infection the drug failed, apparently owing to a difference in the metabolic characteristics of this parasite. R.T.L.

(71l) In search for a non-metallic filaricide which could be given by the mouth, the steps taken in the synthesis of several compounds containing the piperazine nucleus are briefly recounted. R.T.L.

(71m) Of 126 piperazines tested against *Litomosoides carinii* approximately 21% showed measurable effects on the microfilariae. The most promising derivative was Hetrazan (1-diethylcarbamy1-4-methylpiperazine hydrochloride). A large proportion of the microfilariae disappeared after a single dose of 5, 10 or 25 mg. per kg. body-weight; oral was as effective as parenteral administration. There is a slow lethal effect on the adult worms. In dogs with *Dirofilaria immitis* infection the reduction of microfilariae is not so rapid. The optimal dose appears to be 25 mg. per kg. orally three times daily for 30 days. In some animals all the adults are killed, in others some survive. R.T.L.

(71n) Hetrazan, a piperazine compound with marked filaricidal activity, has a low toxicity; 100 mg. per kg. body-weight is readily tolerated by mice, rats, rabbits and dogs when given intraperitoneally. In dogs 25 mg. per kg. orally thrice daily for two months showed no toxicity. It is mildly diuretic and analgesic and is rapidly excreted by the kidneys. The oral L.D.₅₀ in mice was 660 mg. per kg. and in rats 1380 mg. per kg. R.T.L.

(710) [A shorter version of this paper has already appeared in *J. Amer. med. Ass.*, 1947, 135 (11), 708-712 (for abstract see *Helm. Abs.*, 16, No. 242a), and a Spanish version in *Puerto Rico J. publ. Hlth*, 1947, 23 (2), 294-304.]

72—Annals of the Royal College of Surgeons of England.

- a. IBRAHIM, H., 1948.—“Bilharziasis and bilharzial cancer of the bladder.” 2 (3), 129-141.

(72a) In Egypt carcinoma of the bladder is commoner than cancer of the breast, rectum, stomach and cervix combined. It is commonest among those classes usually affected by Bilharzia and has a similar geographical distribution. There is almost always a history of bilharziasis. The carcinoma usually commences in an area of egg deposition. The actual cause of the carcinoma is believed to be the tissue imbalance resulting from the toxin secreted by the miracidium. The majority of cases occur between the ages of 30 and 49 and show a marked decline after 50. The condition is four times commoner in males than in females. The results of total cystectomy, partial cystectomy, presacral neurectomy, pudendal neurectomy, alcohol injection, transplantation of ureters and irradiation are briefly summarized. R.T.L.

73—Antiseptic. Madras.

- a. GHATAK, S., 1948.—“Manifestation of *Ascaris lumbricoides*.” 45 (3), 197-199.
b. SINHA, B. M., 1948.—“Allergic manifestations with respiratory symptoms due to round-worm infection.” 45 (4), 261-262.

(73b) Respiratory symptoms in two young boys are reported as allergic manifestations due to the presence of roundworms. The symptoms disappeared after anthelmintic treatment which resulted in the expulsion of 3 adult worms in the first case and 2 adult worms in the second case. R.T.L.

74—Australian Veterinary Journal.

- a. STEWART, D. F., 1948.—“A preliminary note on a complement fixation test to detect circulating antibodies in sheep infested with *Haemonchus contortus* and *Trichostrongylus* spp.” 24 (5), 112-113.
b. WHITTEN, L. K., 1948.—“The anthelmintic efficiency of phenothiazine sulphoxide against *Haemonchus contortus* and certain large bowel parasites of sheep.” 24 (5), 114-115.

(74a) Stewart records the detection by the complement-fixation test of circulating antibodies in sheep infested with *Haemonchus contortus* or *Trichostrongylus* spp. The method of preparation of the antigen is described: it may be prepared from adult worms or infective larvae. Antibodies were demonstrated in some sheep exposed to infection with *H. contortus* or *Trichostrongylus* spp., but sheep which died of the infestation were negative. J.W.G.L.

(74b) Phenothiazine sulphoxide given in doses of 2-20 gm. to sheep harbouring infections of *Haemonchus contortus*, *Chabertia ovina*, *Oesophagostomum venulosum* and *Trichuris ovis* is shown by Whitten to have an anthelmintic value similar to that of phenothiazine. It has no advantage, however, over the parent substance and would be more costly to produce. J.W.G.L.

75—British Medical Journal.

- a. ANON., 1948.—“Treatment of ascariasis.” [Questions & Answers.] Year 1948, 1 (4540), 85.
b. SWEETMAN, K. F. D., 1948.—“D.D.T. as an anthelmintic.” [Correspondence.] Year 1948, 1 (4543), 227.
c. ANON., 1948.—“Tapeworm.” [Questions & Answers.] Year 1948, 1 (4545), 330.
d. DUNCAN, N. A., 1948.—“Pancreatitis due to ascariasis.” [Correspondence.] Year 1948, 1 (4557), 905.
e. GELFAND, M., 1948.—“Bilharzial affection of the ureter. A study of 110 consecutive necropsies showing vesical bilharziasis.” Year 1948, 1 (4564), 1228-1230.

(75b) D.D.T. gave disappointing results when 1 gm. doses were tried internally as an anthelmintic for roundworm and whipworm infections. In cases of hookworm some of the worms were killed but the efficacy was approximately half to three-quarters that of tetrachlorethylene which is one of the cheapest anthelmintics. R.T.L.

76—Bulletin de l'Académie Vétérinaire de France.

- a. LAFENÊTRE, H., 1948.—“A propos d'une enzootie de moniéziase ovine.” 21 (4), 152-156.

(76a) During the winter 1947-48 a severe epizootic occurred among sheep in the neighbourhood of Béziers and Agde, not only in local flocks but also in those coming from the Andorra Republic, the Eastern Pyrenees and Ariège. Losses ranged from 5% to 25%. The animals were all in good condition. Death was sudden. Other likely causes having been eliminated, a diagnosis of monieziasis was based on the presence of 6, 8, 10 or more tapeworms and on the dramatic cures which followed the administration of copper sulphate solution. R.T.L.

77—Bulletin of the Johns Hopkins Hospital.

- a. CARROLL, D. & HUNNINEN, A. V., 1948.—“Studies on schistosomiasis japonica in the Philippine Islands. 3. A clinical study of 72 cases treated with tartar emetic.” 82 (3), 366-372.

(77a) Seventy-two American soldiers with acute schistosomiasis japonica contracted on Leyte, Philippine Islands, were treated with tartar emetic intravenously. The leucocyte and eosinophile counts, stool examinations and physical condition of 32 of these cases were studied for five months after treatment terminated: the results are tabulated. R.T.L.

78—Bulletin. Ministry of Agriculture and Fisheries. London.

- a. ANON., 1948.—“Tomatoes. Cultivation, diseases and pests.” (1947), No. 77, 2nd edit., iv+67 pp.

(78a) Tomatoes in glasshouses are liable to infection with *Heterodera marioni* and *H. rostochiensis*. Steam sterilization is the best method of control, provided concrete and other structures and the pathway soil are also treated. If the infection is first noticed during the growing season the soil should be covered with moistened peat to the depth of one inch to encourage the growth of new roots. R.T.L.

79—Bulletin de la Société de Pathologie Exotique.

- a. DEJOU, L., 1948.—“Kystes supprimés et abcès chroniques par vers de Guinée.” 41 (3/4), 200-202.
 b. DESCHIENS, R. & BABLET, J., 1948.—“Sur deux cas d'enclavement appendiculaire d'anneaux de cestodes.” [Summary.] 41 (3/4), 202-203.
 c. POIRIER, M. & VILLARD, Y., 1948.—“Nouvelle contribution à l'étude de l'éosinophilie dans l'helminthiase.” 41 (3/4), 203-204.
 d. PICK, F., 1948.—“Précisions nouvelles sur l'anatomie microscopique de *Watsonius watsoni*.” 41 (3/4), 204-205.
 e. PICK, F., 1948.—“Essai de développement des oeufs d'*Ascaris megalocephala* sur des milieux solides.” 41 (3/4), 208-212.
 f. DESCHIENS, R. & PICK, F., 1948.—“Une particularité tinctoriale des oeufs d'*Ascaris megalocephala*.” 41 (3/4), 212-213.
 g. GALLIARD, H., 1948.—“La distomatose intestinale humaine à *Fasciolopsis buski* au Tonkin.” 41 (3/4), 214-217.
 h. SAHEB, M., 1948.—“Résistance apparente des porteurs de parasites à l'égard de la tuberculose.” 41 (3/4), 244-248. [Discussion pp. 248-249.]
 i. LINDBERG, K., 1948.—“Seconde enquête épidémiologique sur la draconculose dans l'Inde.” 41 (3/4), 282-293.
 j. MONTESTRUC, E., 1948.—“A propos de l'index filarien à la Martinique (*W. bancrofti*) et de la lymphangite endémique des pays chauds.” 41 (5/6), 372-373. [Discussion pp. 373-376.]
 k. DELANOE, E., 1948.—“Influence possible de l'infestation vermineuse sur la résistance des indigènes marocains à la tuberculose.” 41 (5/6), 377-380. [Discussion p. 380.]

(79c) Poirier & Villard record the results of a study of eosinophilia in patients affected with taeniasis, ascariasis, enterobiasis and onchocerciasis. Probably with the exception of the enterobiasis patients, the eosinophilia had in all cases passed its maximum and was on the decline by the time the helminthiasis was clinically diagnosed. H.C.

(79d) By a special technique for the observation of the entire organs *in situ*, Pick shows that the deep vascular system in *Watsonius watsoni* communicates with the outside through the bladder, excretory canal and excretory pore, showing that it forms part of the excretory system. He also demonstrates the presence of a bilaterally symmetrical system situated nearer the ventral surface between genital aperture and acetabulum. It is probably lacunar and its function is not known. Pick also records the third case of a mono-testiculate specimen of this species.

H.C.

(79e) Pick has shown that in 2% glucose agar or glycerin agar, at a temperature of 34°C., the earlier stages of development of the eggs of *Parascaris equorum* take less time than under natural conditions. Transference of eggs into glucose agar at 34°C., after a sojourn of 28 days in Ringer-serum solution at 20°C., induced considerable acceleration of development. Spontaneous hatching did not occur in these cases. In the same media, at 20°C., the eggs started their development as under natural conditions. Cultures at 20°C. in Ringer-serum alone, or in glucose agar after Ringer-serum, resulted in the spontaneous hatching of eggs. Pick describes the mechanism of hatching *in vitro*.

H.C.

(79f) According to Deschiens & Pick the internal membrane of the egg of *Parascaris* presents the iodine-staining characteristics of starch, but is not fermented by amylase. The chemistry of the reaction is still to be elucidated, as is that of the *Giardia* cyst which is also coloured sky-blue by Lugol's iodine solution.

H.C.

(79g) Human distomiasis due to *Fasciolopsis buski* has hitherto been considered to be very rare in Tonking. Galliard & Ngu reported five cases in Tonking in 1941 [for abstract see Helm. Abs., 10, No. 181a]. They have since become acquainted with two more cases: one of an assistant who was passing eggs in his stools, the other of a European soldier serving near Langson on the Chinese frontier, who vomited one worm and was passing many eggs in his stools; at autopsy three worms were found in the duodenum and five in the jejunum. Galliard discusses the disparity in geographical distribution between the porcine and human forms of *F. buski*. He considers it difficult to accept the view that the human infestations are accidental ones with the porcine forms. On the other hand there do not seem to be two distinct species, for Galliard & Ngu have found them to be morphologically identical except that the human forms are larger. In Tonking the fruits of *Trappa natans* and the tubercles of *Eliocharis tuberosa*, which carry the encysted metacercariae, are cooked before being eaten and the whole outer covering is removed with a knife and never with the teeth. The plants are not grown in enclosures and manured with human excreta as is done in China. These factors make the disease rare in Tonking, but it is to be found wherever favourable aetiological conditions prevail.

H.C.

(79h) During a systematic investigation of the incidence of pulmonary tuberculosis among the rural population of Upper Egypt, Saheb observed that persons who were markedly anaemic showed neither clinical nor radiological signs of the disease. Its incidence was found to be lower wherever parasitic anaemia was more prevalent. He considers the resistance of anaemic persons to tuberculosis to be due to their carrying ancylostomes, which are supposed to exert an inhibitory influence on the tubercle bacillus, chiefly through the intermediary of the eosinophile leucocytes.

H.C.

(79i) For a large part of the year the sole water supply for the 700-800 inhabitants of the village of Vangarvadi, Hyderabad-Deccan, is a single step-well built in the bed of an intermittent stream. Lindberg found that of 310 persons examined, 82 (26.4%) had had guinea-worm at some time. First infections occurred at all ages from 4 to 68 years; some persons showed a series of infections over a number of years, and in certain cases reinfection occurred regularly during 40-50 years. Tables show the age distribution of repeated infections, age at time of first infection, total number of worms per person, number of years in which infections were acquired, maximum number of infections per person per year, numbers of cases and of worms during 1934 to 1938, and localization of the erupting worms on the body surface. The infection rate of the intermediary, *Mesocyclops vermifer*, in the well concerned has been given in an earlier paper [for abstract see Helm. Abs., 8, No. 488a.]

E.M.S.

(79j) Infection with *Wuchereria bancrofti* in Martinique fell from 5.47% in 1913 to 1.75% in 1936. Authorities are cited also to show that in French Guiana there has been a reduction from 27.37% in 1917 to 14.3% in 1945. Montestruc reaffirms his previously expressed view that endemic lymphangitis is of microbial origin and that *W. bancrofti* plays only a preparatory role by damaging the lymphatics.

R.T.L.

(79k) Delanoe associates the immunity to tuberculosis shown by the indigenous population of Morocco with the frequency of helminth, and particularly of cestode, infestations.

R.T.L.

80—Canadian Journal of Comparative Medicine.

- a. SWALES, W. E., 1948.—“Enterohepatitis (blackhead) in turkeys. II. Observations on transmission by the caecal worm (*Heterakis gallinae*).” 12 (4), 97–100.
- b. SWALES, W. E. & FRANK, J. F., 1948.—“Enterohepatitis (blackhead) in turkeys. III. Observations on the susceptibility of young poults.” 12 (5), 141–143.
- c. ROSS, W. M., 1948.—“A note on the collection of live adults of *Trichinella spiralis*.” 12 (6), 152–154.
- d. FIRLOTTE, W. R., 1948.—“A survey of the parasites of the brown Norway rat.” 12 (7), 187–191.

(80a) Swales confirms that enterohepatitis can be transmitted via the larva of *Heterakis gallinae*, though he has failed to observe infective stages in either eggs or hatched larvae. No disease resulted when eggs or larvae were ground up in a mortar, which suggests that transmission is dependent on the presence of a living larva.

P.A.C.

(80b) Swales & Frank studied enterohepatitis in turkeys by exposing young birds 3, 10, 17 and 38 days old to a natural source of infective material, using litter containing numerous embryonated eggs of *Heterakis gallinae*. 90% of the poults died. Susceptibility to fatal infection occurred when the birds were approximately three weeks old. This disposes of the opinion persistent among poultrymen that real danger does not arise until birds are four or more weeks old.

R.T.L.

(80c) For the collection of living adult *Trichinella spiralis*, a rat is killed five days after infection and 24 hours after its last meal. The small intestine is removed, slit open in a beaker of warm water and the contents gently rinsed away. The gut wall is then transferred to a shallow pan of warm saline and the mucous membrane is scraped off with the narrow end of a glass slide. The shreds of mucosa are finely divided by rubbing between the fingers and added to the saline in the pan. This suspension is then pipetted on to filter paper placed on several layers of blotting paper to absorb the excess saline. When the filter paper is placed face down in a petri dish containing warm saline, the living adults fall off and sink. They can then be concentrated in a small volume of saline for use in the preparation of antigen.

R.T.L.

(80d) The incidence of helminths in 150 *Rattus norvegicus* killed near Macdonald College, Quebec, was *Hymenolepis fraterna* 16.5%, *H. diminuta* 4%, *Cysticercus fasciolaris* 44.6%, *Nippostrongylus muris* 83%, *Heterakis spumosa* 79.3%, *Trichosomoides crassicauda* 55.5%, *Strongyloides ratti* 8%, *Capillaria hepatica* 6%, and *Mastophorus* [= *Protospirura*] *muris* var. *muris* 0.66%. *Trichinella spiralis* was not observed.

R.T.L.

81—Circular. United States Department of Agriculture.

- a. DYKSTRA, T. P., 1948.—“Production of disease-free seed potatoes.” No. 764, 64 pp.

(81a) In this comprehensive and well illustrated pamphlet on the production of disease-free seed potatoes, Dykstra devotes pp. 43–48 to short descriptions of potato disease due to nematodes with indications of the chief symptoms caused by them. The following nematodes are dealt with: the root-knot nematode, *Heterodera marioni*; the golden nematode, *H. rostochiensis*; the potato root nematode, *Ditylenchus destructor*; Scribner's meadow nematode, *Pratylenchus scribneri*; and the smooth-headed meadow nematode, *P. leioccephalus*. In each case recommendations are made for control.

T.G.

82—Comptes Rendus des Séances de la Société de Biologie. Paris.

- a. DESCHIENS, R. & POIRIER, M., 1948.—“L'intoxication chronique du cobaye par l'extrait trichloracétique de liquide hydatique.” 142 (7/8), 435-436.

(82a) Following up their work on the intoxication produced by hydatid fluid, Deschiens & Poirier show that a toxic element is contained in the trichloroacetic acid extract though this fraction is rather less toxic than is pure hydatid fluid. P.A.C.

83—Cornell Veterinarian.

- a. DIKMANS, G., 1948.—“Skin lesions of domestic animals in the United States due to nematode infestation.” 38 (1), 3-23.

(83a) In horses in Virginia and Maryland skin lesions may occur similar to those recorded in horses and mules in the Philippines, and in horses in India and Greece. The microfilariae of *Onchocerca reticulata* which occur in skin scrapings are considered to be the primary cause of the lesions. In cattle, skin lesions are due to *Stephanofilaria stilesi*. In sheep in Arizona, New Mexico and possibly in Colorado and Utah, microfilariae of *Elaeophora schneideri* are the primary cause of lesions on the head and feet. In dogs infestation with *Dirofilaria immitis* apparently results in skin lesions. R.T.L.

84—East African Agricultural Journal.

- a. ANON., 1948.—“Notes on animal diseases. XXI—Diseases caused by worms.” 14 (1), 18-22; (2), 105-109.

(84a) [This is a revision of an article which appeared in *E. Afr. agric. J.*, 1944, 9 (3), 177-180; (4), 240-244.]

85—East African Medical Journal.

- a. HEISCH, R. B., 1948.—“A parasitological survey of Taveta.” 25 (2), 78-94.
b. WOODMAN, H. M., 1948.—“Filariasis in the southern Sudan.” 25 (2), 95-104.

(85a) As the Taveta district of Kenya Colony has long been regarded as a possible site for future African settlement, Heisch has made a survey of the malarial parasite and spleen rates and of the incidence of schistosomiasis in this area. Eggs of *Schistosoma mansoni* occurred in 0-11% and splenomegaly in 30-65% of the village populations. *S. haematobium* was confined to Kileo, a small village west of Kitovu Springs, but there approximately 50% of the inhabitants were infected. No molluscs having a natural infection with either schistosome were collected. *Ascaris lumbricoides* infection was common especially at Mata and Kimirigo. Only three cases of hookworm infection occurred in 185 stool examinations. Strongyloides larvae were occasionally seen. R.T.L.

(85b) In the south-western region of the Sudan, on the borders of North Congo and French Equatorial Africa, Woodman has found *Wuchereria bancrofti*, *Loa loa*, *Onchocerca volvulus* and *Acanthocheilonema perstans*. In 1,500 day and night blood films 12 instances of *W. bancrofti* were seen. It is estimated that *L. loa* occurs in at least 20% of the Zande tribe. A European developed Calabar swellings within five months of arrival in the country and although an adult worm appeared in the eye a few months later, no microfilariae were seen even after nine years. The local vectors of *L. loa* were found to be *Chrysops distinctipennis* and *C. longicornis* but development was slow and irregular; 0.66% of 600 flies were naturally infected. Woodman thinks that the man-*Chrysops* contacts are not great enough to account for the high incidence and that a *Hippocentrus* sp. may be a vector. *Simulium damnosum* is the only vector of *Onchocerca volvulus*. In the Sue I survey nearly 50% of 64 suspects out of a population of 800 had *Onchocerca* embryos in the skin, and in the Sue II survey 88% of 40 people out of a total population of 640 were positive. In the Wau survey in an endemic blindness area 94% of 112 persons examined had *Onchocerca* embryos in the skin and 10% had blindness. *A. perstans* occurs in over 50% of adult natives in the area. Antigen prepared from filariae collected from wild doves gave positive results in 91% of cases with either *L. loa* or *A. perstans*. R.T.L.

86—Farming in South Africa.

- a. ORTLEPP, R. J., 1948.—“Phenothiazine: a remedy for internal parasites.” 23 (267), 400-402.

(86a) [This is a revision of an article which appeared in *Fmg S. Afr.*, 1946, 21 (241), 249-250, 270, 275.]

87—Field.

- a. CLAPHAM, P. A. & MIDDLETON, A. D., 1948.—“Gapes: a menace to game.” 191 (4965), 267-268.

(87a) Rooks and starlings as reservoirs of gapeworm infection are dangerous to game and other birds, particularly pheasants and partridges. That young birds acquire a sudden large dose rather than a slow accumulation of these worms is attributed to infection from eating earthworms or other infected invertebrates. Infected earthworms may live for at least $3\frac{1}{2}$ years. Age immunity in chickens develops at about 8-10 weeks, and after this they can only become infected if suffering from severe dietary deficiency. Adult grouse, pheasants and partridges may infrequently carry parasites but turkeys have no natural age immunity. A slight infection appears to induce resistance to further infection. Physiological strains exist within the species, for chickens and turkeys can be infected directly only with difficulty with gapeworm material of starling origin. R.T.L.

88—Hospital. Rio de Janeiro.

- a. TELLES, W., 1948.—“Diagnóstico e terapêutica da oxiurose.” 33 (2), 205-210.

89—Indian Journal of Medical Sciences.

- a. PATEL, J. C., 1948.—“Antimony and filariasis (*W. bancrofti*). Progress since World War II.” 2 (3), 151-162.

(89a) Patel reviews the published work on the effects of antimony compounds in Bancroftian filariasis and in filarial infections in animals since Rogers first obtained encouraging results in 1919. Lack of success is attributed to ignorance of the longevity of microfilariae in the blood after the death of the adult, inadequacy of drug concentration in the blood, or intolerance on the part of the patients. From the results so far reported neostibosan seems to be the most satisfactory drug. Solustibosan is less effective but more easily tolerated. It is suggested that the total dose of solustibosan in the treatment of human filariasis be increased to a minimum of 16-20 gm. in two weeks in two or three divided doses during the 24 hours. R.T.L.

90—Indian Medical Gazette.

- a. ANON., 1948.—“Treatment for filariasis.” [Questions & Answers.] 83 (3), 162.

91—Journal of the American Medical Association.

- a. HUNT, W. E., ABRAMSON, W. & WEAVER, Jr., T. A., 1948.—“Cerebral schistosomiasis. Report of a case simulating cerebral neoplasm.” 136 (10), 686-689.

92—Journal of the American Veterinary Medical Association.

- a. FOSTER, A. O. & HABERMANN, R. T., 1948.—“Lead arsenate for removal of ruminant tapeworms.” 113 (856), 51-54.

(92a) Although the use of lead arsenate as an anthelmintic for tapeworms in ruminants, which McCulloch & McCoy introduced in 1941 [see *Helm. Abs.*, 10, No. 246e], is still at the experimental stage, it appears to be safe and effective. The efficacy in the present trials ranged from 100% to 16%. A historical outline of this treatment is given, from which it appears that 4,000 ruminants have already been effectively treated. The risk of lead and arsenic poisoning to human beings following the consumption of the flesh of treated animals, however, has yet to be assessed. The prompt recovery of moribund animals after treatment suggests that these tapeworms are more injurious than has been generally supposed. R.T.L.

93—Journal of the Department of Agriculture. Victoria.

- a. BROUGH, E. M., 1948.—“Roundworms in pigs.” 46 (7), 315–316.

94—Journal of Helminthology.

- a. CRUSZ, H., 1948.—“Observations on a case of endogenous budding in *Cysticercus tenuicollis* Rudolphi.” 22 (2), 63–72.
 b. CRUSZ, H., 1948.—“On an English case of an intramedullary spinal coenurus in man, with some remarks on the identity of *Coenurus* spp. infesting man.” 22 (2), 73–76.
 c. SINGH, S. N., 1948.—“Studies on the helminth parasites of birds in Hyderabad State. Nematoda I.” 22 (2), 77–92.
 d. KUNG, C. C., 1948.—“Some new nematodes from the Australian wallaby (*Macropus rufogrisea fruticus*) with a note on the synonymy of the genera *Zoniolaimus*, *Labiostongylus* and *Buccostrongylus*.” 22 (2), 93–108.
 e. GOODEY, J. B., 1948.—“The galls caused by *Anguillulina balsamophila* (Thorne) Goodey on the leaves of *Wyethia amplexicaulis* Nutt. and *Balsamorhiza sagittata* Nutt.” 22 (2), 109–116.

(94a) Crusz describes a specimen of *Cysticercus tenuicollis* which contained many daughter cysts, in various stages of development, one being a well developed daughter cysticercus. From a histological study the daughter cysts are shown to be acephalic, to have the cuticle on their inner surface and to be formed by invagination and subsequent pinching off from the parental bladder-wall. It is suggested, from histological evidence, that the daughter cysticercus with its cuticle on the outside, may have been formed by the eversion of a daughter cyst. The daughter cysts are considered to be homologous with brood capsules of *Echinococcus*. H.C.

(94b) Crusz describes a specimen of *Coenurus cerebralis* obtained from the spinal cord of a 14-years-old girl, the second case on record of human coenurosis in Great Britain. The coenurus is considered to be immature. Some of the hooks are said to resemble those of *C. glomeratus* and others those of *C. serialis*. Crusz stresses the fact that due consideration should be given to the possibility that helminthologists have hitherto been dealing with a single species of coenurus (*C. cerebralis*) infesting man, and have erroneously regarded different developmental stages of this species as three distinct species. H.C.

(94c) A description of some bird helminths from Hyderabad includes several new species. *Desmidocerella leiperi* n.sp. from the air-sacs of *Ardeola grayii* can be recognized by the position of the vulva in the female, and the number and position of the caudal papillae in the male. *Oxyspirura indica* n.sp. from the orbital cavity of *Kittacincla malabarica* has spicules distinctive in size and shape, the large one being of uniform thickness while the small one has a distinct alate expansion; there are no adanal papillae. *O. buccosulcata* n.sp., a parasite of the orbital cavity of *Temenuchus pagodarum*, has spicules of approximately equal thickness and only three pairs of post-anal papillae. *O. masoni* is recorded from *Galloperdix spadicea*, and *O. (Cramispirura) popowi* from *Copsychus saularis*, both being new host records. P.A.C.

(94d) Kung describes four nematode species from *Macropus rufogrisea fruticus*, viz., *Asymmetricstrongylus dissimilis* (Wood, 1930), *Globocephaloides trifidospicularis* n.sp., *Pharyngostrongylus longibursaris* n.sp., and *Zoniolaimus cobbi* n.sp. *Labiostongylus australis* n.sp. is based on specimens recorded, probably in error, from *Python spilotos*. He agrees with Johnston & Mawson that Freitas & Lent wrongly considered *Globocephaloides* as synonymous with *Globocephalus*, for the former genus possesses a buccal capsule supported by four pillar-like bodies which are absent in the latter; there are marked differences also in the bursa and spicules. Kung also reviews the relationships and species of *Zoniolaimus*, *Labiostongylus* and *Buccostrongylus*. R.T.L.

(94e) J. B. Goodey gives a detailed account of the structure of the galls produced by *Anguillulina balsamophila* on the leaves of *Wyethia amplexicaulis* and *Balsamorhiza sagittata*. The galls have an innermost zone of cells with dense contents which is surrounded by a zone of vascular tissue and bounded externally by assimilatory tissue. It is suggested that the galls are caused by excretions similar to growth-promoting substances. There are two text-figures. J.B.G.

95—Journal of Nervous and Mental Disease.

- a. PERKINS, R. F. & UIHLEIN, A., 1948.—“Cerebral schistosomiasis. A report of one proven and two presumptive cases.” 107 (3), 207-219.

(95a) Three cases of cerebral schistosomiasis japonica acquired on Leyte, Philippines, are reported. From a consideration of these and the histories of previously recorded cases this condition is divided into two categories: (i) an acute form where the symptoms appear early and are usually transient, and are due possibly to eggs or larvae acting as emboli in the cerebral vessels, and (ii) a chronic form in which the symptoms appear late and indicate a localization of the lesion due to the deposition of eggs by adult worms in an adjoining venous sinus. Cerebral schistosomiasis must always be suspected if patients from an area where schistosomiasis is endemic show symptoms of an idiopathic convulsive disorder or brain tumour.

R.T.L.

96—Journal of Neurology, Neurosurgery and Psychiatry.

- a. PHILLIPS, G., 1948.—“Primary cerebral hydatid cysts.” 11 (1), 44-52.

97—Journal of Parasitology.

- a. GERICHTER, C. B., 1948.—“Three new species of the genus *Metathelazia* (Nematoda).” 34 (2), 75-83.
- b. WEBSTER, J. D., 1948.—“A new acanthocephalan from the bob-white.” 34 (2), 84-86.
- c. TINER, J. D., 1948.—“*Syphacia eutamii* n.sp. from the least chipmunk, *Eutamias minimus*, with a key to the genus (Nematoda: Oxyuridae).” 34 (2), 87-92.
- d. WEBSTER, J. D., 1948.—“Two cestodes from a nighthawk.” 34 (2), 93-95.
- e. ANGULO, J. J. & ROQUE, A. L., 1948.—“A multilocular coenurus of *Multiceps* sp. in *Capromys pilorides* (Say, 1822) Desmarest, 1822.” 34 (2), 96-100.
- f. BIJLMER, J., 1948.—“On the recovery of Protozoa and eggs of some species of helminths in human feces.” 34 (2), 101-107.
- g. SEAMSTER, A. & STEVENS, A. L., 1948.—“A new species of *Prosthodendrium* (Trematoda: Lecithodendriidae) from the large brown bat.” 34 (2), 108-110.
- h. SEAMSTER, A., 1948.—“Two new Dactylogyridae (Trematoda: Monogenea) from the golden shiner.” 34 (2), 111-113.
- i. OLSEN, O. W., 1948.—“Wild rabbits as reservoir hosts of the common liver fluke, *Fasciola hepatica*, in southern Texas.” 34 (2), 119-123.
- j. FAUST, E. C. & BONNE, C., 1948.—“Mammalian blood flukes of Celebes.” 34 (2), 124-131.
- k. SCOTT, J. A., 1948.—“An apparatus for removing tropical rat mites from large quantities of bedding materials.” 34 (2), 132-133.
- l. MCKAY, F. & MOREHOUSE, N. F., 1948.—“Studies on experimental blackhead infection in turkeys.” 34 (2), 137-141.
- m. LEVINE, M. D., GARZOLI, R. F., KUNTZ, R. E. & KILLOUGH, J. H., 1948.—“On the demonstration of hyaluronidase in cercariae of *Schistosoma mansoni*.” 34 (2), 158-161.
- n. READ, C. P., 1948.—“A new capillarid nematode from the spiny dogfish, *Squalus acanthias*.” 34 (2), 163-164.
- o. DICKERMAN, E. E., 1948.—“On the life cycle and systematic position of the aspidogastroid trematode, *Cotylogaster occidentalis* Nickerson, 1902.” 34 (2), 164.
- p. FRICK, L. P. & ACKERT, J. E., 1948.—“Further studies on duodenal mucus as a factor in age resistance of chickens to parasitism.” 34 (3), 192-206.
- q. CHANDLER, A. C. & RAUSCH, R., 1948.—“A contribution to the study of certain avian strigeids (Trematoda).” 34 (3), 207-210.
- r. STUNKARD, H. W., 1948.—“Pseudophyllidean cestodes from Alaskan pinnipeds.” 34 (3), 211-228.
- s. HEWITT, R., WALLACE, W., WHITE, E. & SUBBAROW, Y., 1948.—“The treatment of ascariasis in dogs with 1-diethylcarbamyl-4-methylpiperazine hydrochloride.” 34 (3), 237-239.
- t. SHORI, R. B., 1948.—“Hermaphrodites in a Puerto Rican strain of *Schistosoma mansoni*.” 34 (3), 240-242.
- u. RENDTORFF, R. C., 1948.—“Investigations on the life cycle of *Oëchoristica ratti*, a cestode from rats and mice.” 34 (3), 243-252.
- v. TINER, J. D. & CHIN, T. H., 1948.—“The occurrence of *Ascaris lumbricoides* L. 1758 in the muskrat, *Ondatra zibethica* L.” 34 (3), 253.
- w. JEFFERY, G. & OLIVER-GONZALEZ, J., 1948.—“Absence of *Trichinella spiralis* in rats in Puerto Rico.” 34 (3), 254.

(97a) Gerichter adds three new Palestinian species to the five species already known in the genus *Metathelazia* viz., *M. multipapillata* n.sp. from *Erinaceus* spp., *M. capsulata* n.sp. from

Meles meles, *Vulpes nilotica* and *Vormela peregusna*, and *M. oesophagea* n.sp. from *Herpestes ichneumon*. A key to the genus is given. The systematic position of *Metathelazia* is discussed but its assignment to the *Metastrongyloidea* is deferred until the life-history is elucidated. R.T.L.

(97b) *Mediorhynchus colini* n.sp. is described from three female specimens recovered from the Texan bob-white, *Colinus virginianus texanus*. It most closely resembles *M. robustus* but possesses fewer and smaller hooks and differs in the structure of the proboscis receptacle. R.T.L.

(97c) *Syphacia eutamii* n.sp. is described from *Eutamias minimus*. It is the only North American species of *Syphacia* which has only two mamelons in the male. A key is given to the 12 species of the genus. R.T.L.

(97d) A nighthawk, *Chordeiles minor minor*, caught in Texas, contained a new cestode named *Bakererpes addisi* n.sp. which differs from *B. fragilis* in having larger and fewer hooks. The ovary has several lobes. A second tapeworm is identified as *Paricterotaenia paucianmulata* and is a new North American record. R.T.L.

(97e) Angulo & Roque describe a coenurus obtained from the right rectus abdominis muscle of a native Cuban rodent, *Capromys pilorides*. It showed marked diverticulation, had many daughter cysts and developed within a honeycomb-like reactional membrane. It is considered to be a multilocular coenurus, probably of the species *Multiceps serialis*. H.C.

(97f) [This article is condensed from a thesis presented to the University of Amsterdam and published in 1947: for abstract see Helm. Abs., 16, No. 352.]

(97g) *Prosthodendrium mizellei* n.sp. is described from the bat, *Eptesicus fuscus*, in Indiana. It is distinguished from other species by the position of the ventral sucker which lies within the area circumscribed by the prostatic mass. Less important differences are also noted. R.T.L.

(97h) Seamster reports for the first time the occurrence of gill parasites in *Notemigonus crysoleucas auratus*, two species being described from Oklahoma. These are named *Dactylogyrus parvicirrus* n.sp. and *D. aureus* n.sp. R.T.L.

(97i) 32% of 309 jack rabbits (*Lepus californicus merriami*) and 20.8% of 24 cottontails (*Sylvilagus floridanus* subsp.) examined by Olsen in the Gulf Coast region of Texas were infected with *Fasciola hepatica*. The conditions in this region are thus very favourable for the maintenance of intense infections, and medication of cattle and sheep is rendered somewhat ineffective. R.T.L.

(97j) *Schistosoma japonicum* occurs in Celebes on the shores of Lake Lindoë in man, dogs and deer. With furcocercous cercariae from a *Limnaea* sp. at Lake Poso, immature schistosomes were obtained experimentally in mice. The cercariae differ from those of known species of *Schistosoma* in possessing only three pairs of penetration glands. R.T.L.

(97k) As *Liponyssus bacoti* is a vector of *Litomosoides carinii*, an apparatus for obtaining large numbers of these adult mites for laboratory studies has been devised. R.T.L.

(97l) The embryonated eggs of *Heterakis gallinae* provide a reliable means of inducing blackhead in turkeys experimentally which is contrasted with the unreliability of field trials. R.T.L.

(97m) It is shown that the enzyme hyaluronidase is produced by cercariae of *Schistosoma mansoni* when these are incubated for 18 hours at 25°C., if sodium hyaluronate is added to the cercarial suspension. There is, however, no correlation between enzyme activity and cercarial concentration. It may be that this enzyme assists the cercariae to penetrate the skin. R.T.L.

(97n) Read describes *Capillaria hathawayi* n.sp. from the small intestine of *Squalus acanthias* from Galveston Bay, Gulf of Mexico. It can be recognized by the small size and smooth shell of the eggs. P.A.C.

(97o) Dickerman's observations on *Cotylogaster occidentalis* show that they undergo direct development within the snail host (*Goniobasis*) and are not dependent on a vertebrate host for continued existence. It is claimed that this evidence supports the view that Aspidogastrea should be recognized as a valid sub-class of Trematoda. R.T.L.

(97p) The efficacy of duodenal mucus as an inhibitor of the growth of *Ascaridia galli* varies directly with the age of the fowl from which the mucus is taken. The inhibitory factor does not depend on previous or current infection. It is probably nutritional in character and temporary in effect. The factor is not an antibody: it is effective after autoclaving for 20 minutes at 15 lb. pressure. R.T.L.

(97q) Examination of 200 birds produced a number of strigeids of which three are now described as new, viz.: *Diplostomum crassum* n.sp. (in *Quiscalus versicolor*), which differs from other species in the thickness of the forebody and may belong to a new genus; *Uvulifer erraticus* n.sp. in *Toxostoma rufum* (an unusual find in passeriform birds); and *Neogogatea pandionis* n.sp. (in *Pandion haliaetus carolinensis*), which is of smaller size, more elongate body, less obvious oral sucker and smaller pharynx than the type species. The holdfast organ of *Hysteromorpha triloba* is redescribed from the original, unpublished description. R.T.L.

(97r) Stunkard describes cestodes of seals and sea lions. It is difficult to assign them to known species as previous accounts are incomplete and diffuse. Specimens from *Phoca barbata* can probably be identified as *Diphyllobothrium lanceolatum*; other material from *Callorhinus ursinus* may be *D. arctocephalinus* and *D. arctocephali*, which are probably conspecific. Other specimens from *C. ursinus* and from *Eumetopias jubata* are perhaps referable to *Diplogonoporus*. *Cordicephalus* Wardle et al. is considered invalid. Stunkard stresses the importance of a taxonomic study of the whole group in order to make satisfactory generic delimitations, only after which can specific determination be considered. P.A.C.

(97s) A dose of 50 mg. per kg. body-weight of 1-diethylcarbamy-4-methylpiperazine hydrochloride [Hetrazan] is almost 100% effective as a vermifuge for dog ascarids. It can be administered either *per os* or as an intraperitoneal injection. It is a safe compound to use, as it appears to be almost non-toxic to dogs though vomiting may occur at times. P.A.C.

(97t) Short describes males of *Schistosoma mansoni* in which occurred ovaries in various degrees of development, though no specimen had a typically developed female system. Although some had a genital pore, no spermatozoa were found in the genital ducts. Two eggs were found in the oviduct of one worm. P.A.C.

(97u) Various insects, species of *Trogoderma*, *Attagenus*, *Anthrenus*, *Tribolium*, *Tenebroides* and *Plodia*, are suitable vectors for *Oöchoristica ratti*. Cysticercoids, which may be found both in the haemolymph and among the fat bodies, are infective after 18 days and may remain viable for at least 143 days. In the definitive host the worm becomes gravid after 23 days. P.A.C.

(97v) Tiner & Chin report the occurrence of *Ascaris lumbricoides* in naturally infected *Ondatra zibethica* in Illinois. They also found *Hymenolepis* sp., *Cysticercus fasciolaris* and *Echinostoma revolutum*. P.A.C.

98—Journal of the Philippine Medical Association.

- a. PESIGAN, T. P., 1948.—"The endemicity of schistosomiasis japonica in Sorsogon, South-eastern Luzon." 24 (1), 19-27.
- b. TUPAS, A. V. & MANALAC-MORALES, S., 1948.—"Intestinal obstruction secondary to ascariasis in children." 24 (1), 29-32.

99—Journal of the Royal Egyptian Medical Association.

- a. SIRRY, A., 1948.—"Radiological study of bilharzial cor pulmonale." 31 (2), 146-177.
- b. MAKAR, N., 1948.—"Two interesting cases of bilharzial papilloma and epithelioma." 31 (3), 217-221.
- c. HALAWANI, A., WATSON, J. M., NOR EL-DIN, G., HAFEZ, A. & DAWOOD, M., 1948.—"Miracil D: a new chemotherapeutic agent for bilharziasis." 31 (3), 272-284.

(99b) These are cases of (i) bilharzial polyposis of the anal canal and (ii) bilharzial epithelioma of the groin. R.T.L.

(99c) The effective dose of Miracil-D in the treatment of intestinal and urinary schistosomiasis must not be less than 18–20 mg. per kg. body-weight daily for 7–8 days. 20 mg. per kg. daily in five doses has given erratic results in experimentally infected animals while five doses of 40–50 mg. per kg. given daily or on alternate days caused the disappearance of viable eggs and of symptoms of the disease [for abstract see below No. 141]. Patients complained of insomnia, headache, vertigo, excessive sweating, tremor and twitching. Those receiving large doses had abdominal colic, nausea without vomiting, and anorexia. Attention is drawn to the necessity of careful observation of the heart during treatment. R.T.L.

100—Journal of the Tennessee Academy of Science.

†a. McCROAN, Jr., J. E. & RAYMOND, T. W., 1948.—“Preliminary study on the application of the Beaver method of counting hookworm eggs by a Public Health Laboratory.” 23 (3), 213–214.

†b. McCROAN, Jr., J. E., 1948.—“The present incidence of hookworm infection in southern Georgia and the methods employed for the control of this infection.” 23 (3), 214.

(100a) A method, not described, of egg-counting devised by Beaver gives reasonably consistent results in relatively inexperienced hands. R.T.L.

(100b) The slight increase in hookworm infection in Georgia during the war years is attributed to deterioration of pit privies, limitation of tetrachlorethylene supplies, and high cost of new latrine construction. A cheaper and more durable pit privy is mentioned but not described. R.T.L.

101—Journal of Tropical Medicine and Hygiene.

a. MEESER, C. V., ROSS, W. F. & BLAIR, D. M., 1948.—“The diagnosis of rectal schistosomiasis.” 51 (5), 91–94.

b. GELFAND, M., 1948.—“The prognosis in schistosomiasis.” 51 (6), 112–119.

(101a) The diagnosis of rectal schistosomiasis by the discovery of eggs in the faeces is not very reliable. The results obtained by the use of a grooved rectal scraper and of rectal biopsy show that in 50 unselected cases, 27 were diagnosed by rectal biopsy and only 2 by rectal scraper. The latter method failed to reveal infections with *Schistosoma haematobium* because apparently the eggs of this species frequently fail to penetrate the gut wall. R.T.L.

102—Journal of Wildlife Management.

a. COWAN, I. McT., 1948.—“The occurrence of the granular tape-worm *Echinococcus granulosus* in wild game in North America.” 12 (1), 105–106.

(102a) The occurrence of hydatid cysts in *Odocoileus hemionus columbianus* in British Columbia, in *O. h. hemionus* and *Cervus canadensis nelsoni* in Alberta, and of the adult *Echinococcus granulosus* in a timber wolf killed in the Athabaska Valley of Jasper National Park suggests that some native canids, such as *Canis latrans* and *C. lupus occidentalis*, may play an important role in the spread of hydatid infections in wild animals in North America. R.T.L.

103—Leaflet. Ministry of Agriculture, Northern Ireland.

a. ANON., 1948.—“Parasitic worm diseases.” No. 91, 7 pp.

104—Medicina Colonial. Madrid.

a. PEÑA YAÑEZ, A., 1948.—“Bilharziosis.” 11 (2), 67–85.

† Abstract of paper presented at the 9th Annual Meeting of the Association of Southeastern Biologists, Gainesville, Florida, April 16–17, 1948.

105—Medycyna Weterynaryjna.

- a. KOZAR, Z., 1948.—“Immunologia włośnicy w świetle nowych badań naukowych.” 4 (1), 26–30. [In Polish.]
- b. GRONEK, Z., 1948.—“Włośnie u mięsożernych domowych w Warszawie.” 4 (1), 30–32. [In Polish: English summary pp. 31–32.]
- c. ZADURA, J., 1948.—“Przyczynki do leczenia schorzeń świń wywołanych przez nicienia węgora świńskiego.” 4 (1), 32–33. [In Polish.]
- d. PUSTÓWKA, T., 1948.—“Jedenaście włośni w jednej torebce u świni.” 4 (1), 40. [In Polish: English summary p. 40.]
- e. CENA, M., 1948.—“Analiza porównawcza odpornościowych zjawisk przy włośnicy.” 4 (1), 41–42; (2), 101–103; (3), 176–179. [In Polish.]
- f. MANN, I. & MANN, E., 1948.—“Rozmieszczenie wągrow (*Cysticercus bovis*) u bydła rzeźnego w Afryce.” 4 (4), 246–248; (5), 313–316; (6), 384–387. [In Polish.]

(105a) [The immunology of trichinelliasis in the light of findings during the past decade.]

(105b) Gronek examined the crura of the diaphragm of 4,120 dogs and 350 cats, and found that 189 dogs (4.59%) and 70 cats (20%) in Warsaw were infested with *Trichinella spiralis*. C.R.

(105c) Zadura treated two piglets, infested with *Strongyloides suis* [= *S. papillosus*], with doses of 0.25 gm. of gentian violet administered on three alternate days. In one case a fourth dose of 1 gm. was given. He claims a complete cure in these animals. C.R.

(105d) Pustówka describes the case of a pig which was very heavily infested with *Trichinella spiralis*. He includes a photograph of one cyst containing 11 larvae. C.R.

(105e) [Comparative review of resistance phenomena in trichinelliasis.]

(105f) [This is a translation of an article in *Vet. J.* 1947, 103 (7), 239–250. For abstract see *Helm. Abs.*, 16, No. 348a.]

106—Mémoires du Muséum National d'Histoire Naturelle. Paris.

- a. DOLLFUS, R. P., 1948.—“Sur les Prosthogoniminae, trématodes de la bourse de Fabricius des oiseaux et leur biogéographie.” 24 (1), 1–73.

(106a) The occasional occurrence of trematodes, usually of the genus *Prosthogonimus*, within the eggs of poultry was noticed as long ago as 1749 by Hanow. Dollfus lists the known species of Prosthogoniminae and catalogues them under 130 avian hosts, citing the geographical distribution and the author of each record. The chief habitat is the bursa of Fabricius, although they occur in the oviduct where they may cause a diminution or temporary cessation of egg production, the formation of eggs without shells, and in some instances death. Although prosthogonimiasis has not been noticed in France or Britain, the parasites are not uncommon. Dollfus has found them in various wild birds and in a domestic duck at Richelieu (Indre-et-Loire). The only British record cited is that of Baylis, 1939 for *Corvus corone* in Surrey. R.T.L.

107—Nature. London.

- a. KERSHAW, W. E. & BERTRAM, D. S., 1948.—“Course of untreated infections of *Litomosoides carinii* in the cotton rat.” [Correspondence.] 162 (4108), 149–150.

(107a) In cotton rats infected experimentally with *Litomosoides carinii*, Kershaw & Bertram observed spontaneous cure in some cases. They were unable to establish a correlation of the count of circulating microfilariae with the death of the adult worms. They suggest that chemotherapy results should be interpreted with due regard to the findings in untreated controls, and that results obtained in wild, naturally infected cotton rats should be accepted with caution. E.M.S.

108—New England Journal of Medicine.

- a. SKINNER, J. C., 1948.—“Neurologic complications of trichinosis. Report of two cases.” 238 (10), 317–319.

109—North American Veterinarian.

- a. ANON., 1948.—“Parasitism in puppies.” [Questions & Answers.] 29 (2), 100.
- b. POLLOCK, S., 1948.—“Canine filariasis complicated by albuminuria.” 29 (7), 429-430, 432.

110—Parasitology.

- a. CROFTON, H. D., 1948.—“The ecology of immature phases of trichostrongyle nematodes. I. The vertical distribution of infective larvae of *Trichostrongylus retortaeformis* in relation to their habitat.” 39 (1/2), 17-25.
- b. CROFTON, H. D., 1948.—“The ecology of immature phases of trichostrongyle nematodes. II. The effect of climatic factors on the availability of the infective larvae of *Trichostrongylus retortaeformis* to the host.” 39 (1/2), 26-38.
- c. SPROSTON, N. G., 1948.—“On the genus *Dinobothrium* van Beneden (Cestoda), with a description of two new species from sharks, and a note on *Monorygma* sp. from the electric ray.” 39 (1/2), 73-90.
- d. ROGERS, W. P., 1948.—“The respiratory metabolism of parasitic nematodes.” 39 (1/2), 105-109.

(110a) Crofton has made a detailed study of the distribution on different types of herbage of the infective larvae of *Trichostrongylus retortaeformis*, cultivated from the faeces of experimentally infected rabbits. On *Festuca* 90% of the larvae occurred on the lower 3 inches of the blades of plants 5½ inches high and on the lower inch of those 3 inches high. The larvae distributed themselves evenly over the stems and leaves of clover, while on *Carex vulgaris* the larvae were limited to the lower 2 inches of plants 10 inches in height. During December and January no larvae were found on the grass blades or in the soil. The height, density and type of herbage modified the effect of the climatic factors. The vertical distribution of the larvae could be accounted for without reference to “geotropism”: the larvae were present in that part of the herbage where the climatic change was least. Interesting data are given of the temperatures, relative humidity, rate of evaporation and light intensity in a grass sward. R.T.L.

(110b) Crofton has studied the rate of hatching, development and survival of the larvae of *Trichostrongylus retortaeformis* under dry and winter conditions, the daily fluctuations in the number of larvae on grass plots, and their rate of disappearance during successive months. When the maximum temperatures were below 50°F. there was no hatching. Eggs passed in the autumn can survive a cold winter but those passed during the coldest period die. There was little or no migration when the temperature did not exceed 55°F. A high death-rate occurred in warm weather, in which the rate of evaporation was high. The number of larvae on grass blades depended upon the climate at the time and on the effect of previous conditions on hatching and survival. R.T.L.

(110c) Miss Sproston deals with the systematics of the genus *Dinobothrium* and confirms its validity. It now comprises *D. septaria* (type), *D. planum*, *D. keilini* n.sp. and *D. paciferum* n.sp. Each species is described and illustrated. *D. keilini* was obtained from *Carcharinus glaucus*, and *D. paciferum* from *Cetorhinus maximus*. A note is added on an immature strobila of a probably new species of *Monorygma* from *Torpedo nobiliana*. All the material was collected in British waters off Plymouth. R.T.L.

(110d) Rogers has studied the respiratory activity of a wide group of nematodes in several stages of development. The results showed that the oxygen uptake (as represented by the Q_{O_2} value) for *Haemonchus contortus* eggs varied between -9.7 and -12.6 according to the degree of development of the embryos. The respiratory quotient (R.Q.) was about 0.6. Young infective larvae of *Nippostrongylus muris* had a high Q_{O_2} (-18.4) which decreased with age. Third-stage *Haemonchus* larvae gave similar results. Exsheathment had no effect upon respiration. The Q_{O_2} values for adult parasites were -2.5 (*Ascaridia galli*), -5.1 (*Nematodirus* spp.), -6.8 (*Nippostrongylus muris*) and -12.6 (*Neoaplectana glaseri*). *Ascaridia galli* had a much higher oxygen uptake than that of other organisms, when this was calculated on a surface area basis. Q_{CO_2} values were small in all cases and the R.Q. of infective larvae, which contained reserve fat, was about 0.72. Forms which contained much glycogen as well as fat had an R.Q.

between 0.6 and 0.7, with the exception of *Ascaridia galli* which gave an R.Q. of 0.95. Potassium cyanide inhibited respiration in all these forms. On the basis of these studies the nature of the respiratory metabolism of parasitic nematodes is discussed, and certain generalizations advanced.

H.C.

111—Phytopathology.

- a. PARRIS, G. K., 1948.—“Influence of soil moisture on the growth of the potato plant and its infection by the root-knot nematode.” 38 (6), 480-488.
- b. JENKINS, W. A., 1948.—“Root rot disease-complexes of tobacco in Virginia. I. Brown root rot.” 38 (7), 528-541.
- †c. KINCAID, R. R., 1948.—“Soil fumigation for cigar-wrapper tobacco in Florida.” 38 (7), 570.
- †d. SMITH, A. L., 1948.—“Soil treatment control of fusarium wilt and nematodes of cotton.” 38 (7), 573.
- †e. TARJAN, A. C., 1948.—“Inefficacy of ethylene chlorobromide as a therapeutic agent in the treatment of gardenias infected with the root-knot nematode.” 38 (7), 577.
- †f. TARJAN, A. C., 1948.—“The meadow nematode disease of boxwood.” 38 (7), 577.

(111a) Parris grew potatoes for varying periods in pots of soil infested with *Heterodera marioni* kept at three moisture levels: “wet” (31-36% moisture), “medium” (27-32%), and “dry” (24-27%). In one series the soil was first fumigated with chloropicrin to kill the nematodes. The yield of tubers and the degree of galling of tubers and roots were compared in plants dug after 30, 60 and 90 days' growth. It was found that reduction in yield due to root-knot infestation was greater in “dry” than in “wet” soil, and also that in both fumigated and unfumigated soil the yields were highest in the “wet” soil. The tubers bore enlarged lenticels and were more severely galled in “wet” than in “dry” soil, but the roots were more severely damaged in “dry” soil. The nematodes appeared to enter the tubers through the enlarged lenticels and often induced gall formation at these points. The potato plant was better able to produce new roots in “wet” than in “dry” soil and hence could counteract the damage due to nematodes better under moist conditions.

M.T.F.

(111b) As a result of extensive field observations and pot experiments, Jenkins has been able to satisfy himself that brown root-rot of tobacco, which occurs in various parts of the U.S.A., is due to a root-rot complex. It is clear, however, that the primary damage to the feeding roots is initiated by nematodes belonging to the meadow nematode group and that the true meadow nematode, *Pratylenchus pratensis*, consistently produces severe symptoms. Damage to the roots is described and figured and much information is presented on symptomatology, especially in relation to pot cultures carried out at 68°F., 73°F. and 80°F.

T.G.

(111c) Kincaid reports on soil fumigations carried out at the North Florida Experiment Station in 1947, using a D-D mixture at 20 gal. per acre and ethylene dibromide (10%) at 30 gal. per acre, three months prior to the transplantation of cigar-wrapper tobacco. The crop showed substantial reduction in the amount of root-knot and nematode root-rot, and increases in yield of 200-400 lb. per acre, with no important differences in grade and fire-holding capacity of the leaves.

T.G.

(111d) Smith reports greatly increased yields of cotton following treatment of land with Dowfume W-10 (10% ethylene dibromide by volume). A number of cotton varieties were grown following treatment at the rate of 30-37 gal. per acre; the treatment had the effect of practically completely controlling wilt and nematodes [genera and species unspecified].

T.G.

(111e) [A fuller account of this work has appeared in *Phytopathology*, 1948, 38 (10), 845-847. For abstract see *Helm. Abs.*, 17, No. 216b.]

† Abstract of paper presented at the 1948 Annual Meeting of the Southern Division, the American Phytopathological Society, Washington, D.C., February 12, 13 and 14, 1948.

‡ Abstract of paper presented at the 5th Annual Meeting of the Potomac Division of the American Phytopathological Society, Beltsville, February 11 and 12, 1948.

(111f) Tarjan gives a short description of the disease symptoms shown by boxwood bushes whose roots are invaded by meadow nematodes, *Pratylenchus* spp. Roots show isolated or more extensive brownish-black lesions. Where attack has continued over a number of years, the root system may show a mass of proliferations giving a dense interwoven mass confined to the upper soil levels. The above-ground symptoms include defoliation, sudden death of branches, various degrees of foliage chlorosis and discoloration. Symptoms are more pronounced during drought or frost. T.G.

112—Plant Disease Reporter.

- a. DIACHUN, S., 1948.—“Meadow nematode on Weigelia in Kentucky.” 32 (4), 133-134.
- b. ALLISON, J. L., WEIMER, J. L., DECKER, P. & LYLE, J. A., 1948.—“Lupine disease survey in the Southeastern States.” 32 (5), 181-184.
- c. JACKSON, L. W. R., 1948.—“Deterioration of shortleaf pine roots caused by a parasitic nematode.” 32 (5), 192.

(112a) Diachun reports the occurrence of the meadow nematode, *Pratylenchus pratensis*, in brown lesions on the fine roots of three small plants of Weigelia from a Kentucky nursery. T.G.

(112b) Allison et al. have carried out a survey of diseases affecting the blue lupine, *Lupinus angustifolius*, in the southeastern U.S.A. As well as a number of fungal diseases they mention root-knot due to *Heterodera marioni* as affecting many lupine plants in two fields at Perry, Georgia. T.G.

(112c) Jackson reports the occurrence of the nematode *Criconeimoides rusticum* (Micoletzky) Taylor on the roots of some potted seedlings of the shortleaf pine. The soil in which they were growing had come from a plantation of 3-years-old plants which were showing marked signs of little-leaf disease and the nematodes were associated with a deterioration of the fine roots and mycorrhizae. They were found with the anterior region of the body within the root tissues and the posterior region protruding from the root surface. It is suggested that foliar decline of pines in the southern pine region of the U.S.A. may be caused by root-invading nematodes. T.G.

113—Pomme de Terre Française.

- a. GRISON, P. & RITTER, 1948.—“*Heterodera rostockiensis*, nématode dangereux pour la pomme de terre.” Année XI, No. 102, pp. 9-12.

(113a) Grison & Ritter describe briefly the life-history of the potato root nematode and its effect on the host plant. They mention methods of control only very briefly, both because they are not very effective and because the parasite is not known in France. M.T.F.

114—Popular Bulletin. Washington Agricultural Experiment Station.

- a. CAMPBELL, L., 1948.—“Strawberry diseases in Washington.” No. 187, 23 pp.

(114a) Campbell describes three diseases of strawberries said to be caused by nematodes. Leaf and stem gall (due to *Anguillulina dipsaci*) is of minor importance but strawberries may become infected from other host plants. Spring dwarf (due to *Aphelenchoides fragariae*) has only been found once in Washington, when it was eradicated. Root-knot (due to *Heterodera marioni*) has also only been found once on strawberries in Washington, when it was suitably dealt with. General recommendations are given for the control of these diseases. M.T.F.

115—Practitioner.

- a. Mac KEITH, R. & WATSON, J. M., 1948.—“The diagnosis and treatment of threadworm infestation.” 160 (958), 264-270.

(115a) 40-50% of children who were in- and out-patients in London were found to be infected with *Enterobius vermicularis*. 100% of the boys in a residential home were heavily

infected but none had symptoms. Pruritus ani is attributed to the presence of worms in the rectum or anal canal rather than on the perianal skin. Vague gastro-intestinal disturbances are attributed to remedies rather than to the worms. Diagrams show the methods of detecting the eggs devised by Graham and by Schüffner & Swellengrebel, viz., by the use of (i) adhesive cellulose tape and (ii) a glass pestle to collect the material for microscopical examination. If the anthelmintic use of gentian violet in enteric-coated tablets or of diphenan, together with appropriate hygienic measures, is unsuccessful the whole household should be treated. R.T.L.

116—Proceedings of the Transvaal Mine Medical Officers' Association.

- a. GRANT, M. C. G., 1948.—“A case of hydatid cyst of the pelvic cellular tissues.” 1947-48, 27 (297), 60.

117—Public Health Reports. Washington.

- a. NEW YORK ACADEMY OF MEDICINE, 1948.—“Control of trichinosis. Report by the Committee on Public Health Relations.” 63 (15), 478-488.

(117a) This report recognizes that the present regulations of the United States Department of Agriculture do not protect the consumer from infection with trichinosis by pork products ordinarily cooked at home, e.g. roast pork or bacon. It reveals also that rapid chilling at low temperatures as an inexpensive and effective means of killing trichinae is not a method which refrigerating engineers support, for the quality of the pork so treated may offend the taste of the purchasers. The Committee believes that fundamental research on the potentialities of quick freezing should be stimulated. Meanwhile it recommends the exclusion from New York City of all pork from pigs fed on uncooked garbage, that uncooked garbage should not be shipped from New York City or fed to pigs awaiting slaughter within the city, that the Sanitary Code relating to the cleansing of equipment for the preparation of pork products be strictly enforced, and that an educational campaign should direct attention to the dangers of consuming insufficiently cooked pork.

R.T.L.

118—Publicación. Escuela de Veterinaria. Universidad de Buenos Aires.

- a. GALOFRÉ, E. J. & ROSA, W. A., 1948.—“Ensayos sobre resistencia de huevos de áscaris del caballo.” (1947), No. 3, 30 pp. [English summaries pp. 29, 30.]

(118a) The eggs of *Parascaris equorum* develop embryos in 10-13 days at 20°C., in 4 days at 30°C. and in 3 days at 36°C. Between 5°C. and 10°C. the eggs survived under water over two years and two months, or in faecal culture 257 days; at 36°C. they survived only 161 days in faecal material, or 8 days under water.

R.T.L.

119—Queensland Agricultural Journal.

- a. GORDON, H. McL., 1948.—“Control of worm parasites of sheep.” 67 (1), 33-54.

(119a) Gordon deals with the practical problems of the grazier in overcoming or controlling the worm parasites of sheep. The preparation and best use of drenches containing phenothiazine, bluestone-nicotine, carbon tetrachloride, bluestone-arsenic or tetrachlorethylene are described: the dose rates are given. Prevention based on strategic and tactical drenching is related to the seasonal changes in incidence. Adequate nutrition, destruction of eggs and larvae by sunlight, progressional and rotational grazing, and reduction of rate of stocking are control measures. The distribution, seasonal incidence and control of *Oesophagostomum columbianum* receives detailed consideration.

R.T.L.

120—Recueil de Médecine Vétérinaire.

- a. CLECH, L., 1948.—“Parasitoses gastro-intestinales du cheval et leur traitement.” 124 (4), 153-157.

121—Report of the Bilharzia Snail Destruction Section, Ministry of Public Health, Egypt.

- a. BARLOW, C. H. & AZIM, M. A., 1948.—“Annual Report.” 5th (1946-47), 37 pp.

(121a) The progress of the snail destruction campaign in the Fayoum, in Giza Province, in Aswan Province and in three oases, Baharia, Dakhla and Kharga, is described. An account is also given of the extension of the work to Qena Province, to Qaliubiya Province and to the southern part of Beheira. In the laboratory work *Physopsis africana* was successfully infected with *Schistosoma haematobium*, but *Bulinus tropicus* was refractory. *Planorbis glabratus* from Venezuela was successfully infected with the Egyptian *S. mansoni*. Other laboratory work included tests of repellent skin varnish against cercarial penetration; experimental infection of mice with *S. haematobium* and *S. mansoni*; the effect of copper sulphate treatment on *Bulinus* eggs *in vitro*; a comparison of the egg-output of self-fertilized and cross-fertilized *B. truncatus*; a comparison of the egg-output of *B. truncatus* and *P. africana* infected with *S. haematobium* with the egg-output of uninfected snails.

J.J.C.B.

122—Report. Department of Agriculture, New Zealand.

- a. BARRY, W. C., 1948.—“Report of Director, Live-stock Division.” Year 1947-48, pp. 48-59.
b. FILMER, J. F., 1948.—“Report of Director, Animal Research Division.” Year 1947-48, pp. 60-79.

(122a) It is reported that the danger of losses from parasitic gastro-enteritis in sheep is markedly lessened when the food supply of young stock is maintained at an even and reasonable level throughout the autumn and winter months. A few showed scouring but this was controlled by phenothiazine.

R.T.L.

(122b) Although phenothiazine sulphoxide showed an efficiency against *Haemonchus contortus* equal to that of phenothiazine, and some effect on *Chabertia ovina* and *Oesophagostomum venulosum*, it possesses no advantages over phenothiazine and is more expensive to produce. Unsuccessful attempts were made to immunize sheep actively and passively against *Haemonchus*.

R.T.L.

123—Report of the Kentucky Agricultural Experiment Station.

- a. ANON., 1948.—“Survival of nematode parasites of sheep on pasture.” 60th (for 1947), p.15.
b. ANON., 1948.—“Continuous administration of phenothiazine to horses.” 60th (for 1947), p. 25.
c. ANON., 1948.—“Sodium fluoride for ascariasis of horses.” 60th (for 1947), p. 26.
d. ANON., 1948.—“Meadow nematodes and brown root rot of tobacco and other crops.” 60th (for 1947), pp. 32-33.

(123a) Between 15th June and 1st July approximately two gallons of faeces from sheep with *Haemonchus contortus*, *Ostertagia circumcincta*, *Trichostrongylus* spp., *Nematodirus filicollis*, and *Oesophagostomum columbianum* were spread on a plot of permanent pasture measuring 12 × 22 feet. Three months later, three parasite-free lambs failed to acquire any infection during a ten days' exposure.

R.T.L.

(123b) Thirteen horses with strongyloid egg-counts ranging from 750 to 6,200 per gramme were allowed free access to a 1 : 25 phenothiazine and salt mixture. Two months later there was no material reduction in the egg-counts but by the end of the third month this occurred in two of the horses. In a second experiment, six horses with egg-counts ranging from 500 to 3,600 per gramme received 2.5 gm. of phenothiazine in a ground grain ration for a period of 3 months. After one month the counts were reduced to 0 to 100 e.p.g., and remained at this level during the second and third month. No toxic effect was observed.

R.T.L.

(123c) No gastric or intestinal inflammation was seen after slaughter in a horse weighing 1,000 lb. to which a dose of 2.5 gm. per 100 lb. body-weight of sodium fluoride had been given by stomach tube. Another horse weighing 1,300 lb. received a dose of 5 gm. sodium fluoride per 100 lb. body-weight, but there was catarrhal and haemorrhagic gastritis and catarrhal enteritis. The kidneys and liver were slightly swollen and haemorrhagic infarcts occurred in the spleen. No ascarids were found in either horse and "there was apparent action of the sodium fluoride against the small roundworms in the cecum and colon". R.T.L.

(123d) Meadow nematodes are stated to be widespread in 14 counties of Kentucky and have been found in the roots of tobacco, legumes, grasses and small grains. In the roots of spring-seeded red clover as many as 537 specimens were found in the root system of a single seedling, and it is suggested that they may be an important factor in red clover root-rot problems. Meadow nematodes were less abundant in a soil which had received sulphur several years ago (pH 5) than in soil that had been limed (pH 6.5). On plots treated with D-D mixture and ethylene dibromide they were reduced in numbers in a sandy type of soil, but in a heavier type of soil the fumigants were less effective, probably because the sod was incompletely broken down. T.G.

124—Revista Ibérica de Parasitología.

- a. LÓPEZ-NEYRA, C. R., 1948.—"Microbios y helmintos." 8 (1), 3-28.
- b. LÓPEZ-NEYRA, C. R., GONZÁLEZ DE VEGA, N., TORRES LÓPEZ, A., HERNÁNDEZ LÓPEZ, E., MUÑOZ FERNÁNDEZ, E. & LÓPEZ PRIOR, A., 1948.—"La ascariidiosis humana." 8 (1), 29-32.
- c. LÓPEZ-NEYRA, C. R., 1948.—"La ascariidiosis humana. I. Los ascáridos." 8 (1), 33-44.
- d. LÓPEZ-NEYRA, C. R., 1948.—"Ciclo evolutivo ascariidiano." 8 (1), 45-55.
- e. LÓPEZ-NEYRA, C. R., 1948.—"Ascariidiosis larvaria pulmonar humana." 8 (1), 56-62.
- f. LÓPEZ-NEYRA, C. R., 1948.—"Granulomas pseudotuberculosos ascariidianos." 8 (1), 63-72.
- g. LÓPEZ-NEYRA, C. R., 1948.—"Consecuencias de las emigraciones larvarias nematoidales." 8 (1), 74-78.
- h. LÓPEZ-NEYRA, C. R., 1948.—"Ambiente parasitario humano en Granada." 8 (1), 79-86.
- i. LÓPEZ-NEYRA, C. R. & GONZÁLEZ DE VEGA, N., 1948.—"La ascariidiosis humana. II. Las neumobronquitis ascariidianas larvarias." 8 (1), 87-93.
- j. GONZÁLEZ DE VEGA, N., 1948.—"La ascariidiosis humana. III. Estudio clínico del paso pulmonar de las larvas de áscaris en el hombre." 8 (1), 94-112.
- k. TORRES LÓPEZ, A. J., 1948.—"La ascariidiosis humana. IV. Clínica de la ascariidiosis intestinal." 8 (1), 113-127.
- l. HERNÁNDEZ LÓPEZ, E., 1948.—"La ascariidiosis humana. V. Intervenciones quirúrgicas motivadas por la ascariidiosis constituida." 8 (1), 128-160.
- m. MUÑOZ FERNÁNDEZ, E., 1948.—"La ascariidiosis humana. VI. Terapéutica de las ascariidiosis." 8 (1), 161-170.
- n. LÓPEZ PRIOR, A., 1948.—"La ascariidiosis humana. VII. Aportación al estudio de la epidemiología de la ascariidiosis." 8 (1), 171-238.
- o. GONZÁLEZ CASTRO, J., 1948.—"Aportación al conocimiento de la fasciolosis humana, con motivo de algunos casos observados en Granada." 8 (2/3), 247-341.
- p. JIMÉNEZ, M. P., 1948.—"*Setaria cervi* (Rud. 1819) en bovinos andaluces." 8 (2/3), 343-347.

(124b) An examination of 4,805 hospital patients and 300 private patients in Granada during 1922 to 1945 shows a total incidence of helminthiasis of 48.98%, comprising unspecified mixed protozoan and helminth infections (11.45%) and various helminth infections (for which individual figures are given) 37.53%. The total incidence of ascariasis was 34.28%. Hookworm was recorded only 7 times, *Strongyloides* twice, *Diphyllobothrium* and *Dipylidium* once each, *Taenia solium* in 32 cases, *T. saginata* in 28, and *Hymenolepis nana* in 145. Tables are provided in which these incidences are compared with those of other investigators in the Granada region and in the whole of Spain, and in which the findings are broken down to show age incidence. P.A.C.

(124m) Santonin and hexylresorcinol are well proved ascaricides. The parasiticide D.D.T. is said to have been favourably reported as an ascaricide by Brazilian workers. [As far as is known no copy of the Brazilian work referred to has been received in this country.] E.M.S.

(1240) González Castro summarizes the distribution and incidence of fascioliasis in domestic animals in Spain, and relates this to the known incidence of human cases. The clinical picture in five human cases is described, and methods of diagnosis and treatment are discussed. E.M.S.

(124p) Jiménez found nine females and two males of *Setaria cervi* in the peritoneal cavity of five bovine carcasses, in the course of meat inspection in the abattoir of Seville, between June 1947 and July 1948. This constitutes the first record of the parasite in Spain. The specimens are described and compared with those found elsewhere, and with other species of the genus. E.M.S.

125—Rivista di Parassitologia.

- a. LAGRANGE, E. & BETTINI, S., 1948.—“Descrizione di una nuova filaria, *Litomosia ottaviani* Lagrange e Bettini, 1948, parassita di pipistrelli.” 9 (2), 61–77. [English & French summaries p. 77.]

(125a) To the genus *Litomosia*, Lagrange & Bettini add *L. ottaviani* n.sp. from the bats, *Vespertilio murinus* and *Miniopterus schreibersi*, in Sardinia. The males measure about 26–26.8 mm. and the females 53.2 mm. in length. The skin is transversely striated. In the male the tail is spirally coiled and there are minute peri-cloacal papillae. The left spicule has a transparent membranous extension. R.T.L.

126—Science.

- a. SHOPE, R. E., 1948.—“An unfamiliar mechanism of disease transmission.” [Abstract of paper presented at the 1948 Meeting of the American Philosophical Society.] 107 (2788), 586.

(126a) Although the diseases known to be transmitted by helminths are at present limited to blackhead in turkeys, “salmon poisoning” in dogs and influenza in swine, Shope believes that further investigation will enlarge the list. R.T.L.

127—Scientific Agriculture.

- a. VANTERPOOL, T. C., 1948.—“*Ditylenchus radiculicola* (Greeff) Filipjev, a root-gall nematode new to Canada, found on wheat and other Gramineae.” 28 (5), 200–205.

(127a) Vanterpool records the discovery of the root-gall nematode, *Ditylenchus radiculicola* [= *Anguillulina radiculicola*], on the roots of wheat from a farm close to Radisson, Saskatchewan, Canada. The plants had been grown in a box of soil which the farmer had removed from one of his fields and had sown with two varieties of wheat, one of rye and one of oats. Field studies and experimental infection subsequently showed that galls caused by the same species of nematode occurred on the roots of *Agropyron smithii* and *A. cristatum* (both new host records), barley and rye. No galls occurred either naturally or under experimental conditions on the roots of oats, maize, flax, rape, sunflower, alfalfa, sweet clover or *Bromus inermis*. The paper is illustrated by some good photographs of the root galls. T.G.

128—Semaine des Hôpitaux de Paris.

- a. HARANT, H. & GALAN, G., 1948.—“La spécificité dans l'aggression parasitaire.” 24 (1), 19–21.

129—South African Medical Journal.

- a. DE MEILLON, B., 1948.—“Aspects of the natural history of Bilharzia in South Africa.” 22 (7), 253–260.
b. LOVERIDGE, F. G., ROSS, W. F. & BLAIR, D. M., 1948.—“Schistosomiasis: the effect of the disease on educational attainment.” 22 (7), 260–263.
c. CAWSTON, F. G., 1948.—“Some past and present aspects of the Bilharzia problem.” 22 (7), 263.

(129a) De Meillon summarizes the literature of schistosomiasis in South Africa. He points out the difficulty of identifying the molluscan vectors. In the Union of South Africa the following species have been reported as vectors for *Schistosoma haematobium*: *Physopsis*

africana, *P. globosa*, *Bulinus forskali*, *B. tropicus* and *Limnaea natalensis*. He has failed repeatedly to infect the two last-named species. For *S. mansoni* the only vector so far implicated is *Biomphalaria pfeifferi*. This snail reaches full growth in four to six months but begins to deposit eggs when three months old. In the laboratory it breeds throughout the year but on the Transvaal highveld and bushveld its numbers are greatly reduced in winter. The distribution in the Union of South Africa of *S. haematobium* and *S. mansoni* is shown on a diagram and that of the carriers is summarized from Connolly's monograph. A section on laboratory technique deals with the identification of cercariae in wild snails, the experimental infection of laboratory animals, and the keeping and rearing of snails and their infection under laboratory conditions. It is advisable to keep the aquaria at 28°C. or over and to use snails about two or three months old. There is evidence that *S. mansoni* is spreading in the Union and a plea is made for more research of a basic nature.

R.T.L.

130—Southern Medical Journal.

- a. MILLER, J. M. & THOMISON, S. J., 1948.—“Surgical aspect of infestation with intestinal parasites.” 41 (2), 178–180.

131—Technical Bulletin. Oklahoma Agricultural Experiment Station.

- a. COOPERRIDER, D. E., PEARSON, C. C. & KIEWER, I. O., 1948.—“A survey of the gastro-intestinal parasites of cattle in Oklahoma.” No. T-31, 18 pp.

(131a) The results of a helminthological examination of 57 healthy cattle under 18 months old, slaughtered at 14 localities in the State of Oklahoma, are tabulated. The infections found were *Haemonchus* 87%, *Ostertagia* 95%, *Trichostrongylus* 79%, *Cooperia* 84%, *Nematodirus* 52%, *Bunostomum* 23%, *Moniezia* 30%, *Ascaris* 5%, *Oesophagostomum radiatum* 81%, *Chabertia ovina* 28% and *Trichuris ovis* 17%. The rumen was not examined.

R.T.L.

132—Tijdschrift voor Diergeneeskunde.

- a. BOS, A. W. A., 1948.—“*Paramphistomum cervi*.” 73 (2), 61.

(132a) In reply to Schoon [see Helm. Abs., 16, No. 339b], Bos states that during the last 15 years he has found *Paramphistomum cervi* four times in the rumen and reticulum of cattle in Holland. In one case the animal was known to have come from Limburg. The place of origin has not been recorded in the other three cases: importation from Germany was possible.

A.E.F.

133—Transactions of the American Microscopical Society.

- a. NEEL, J. K., 1948.—“A limnological investigation of the psammon in Douglas Lake, Michigan, with especial reference to shoal and shoreline dynamics.” 67 (1), 1–53.
 b. WEBSTER, J. D., 1948.—“A new acanthocephalan from the sanderling.” 67 (1), 66–69.
 c. READ, C. P., 1948.—“Strigeids from Texas mink with notes on the genus *Fibricola* Dubois.” 67 (2), 165–168.
 d. CHANDLER, A. C., 1948.—“New species of the genus *Schistotaenia*, with a key to the known species.” 67 (2), 169–176.
 e. REID, W. M., 1948.—“Penetration glands in cyclophyllidean oncospheres.” 67 (2), 177–182.
 f. MORGAN, B. B., 1948.—“*Physaloptera buteonis* n.sp., a nematode from the eastern red-tailed hawk.” 67 (2), 183–186.
 g. RAUSCH, R., 1948.—“Notes on cestodes of the genus *Andrya* Railliet, 1883, with the description of *A. ondatrae* n.sp. (Cestoda: Anoplocephalidae).” 67 (2), 187–191.
 h. TINER, J. D., 1948.—“Observations on the *Rictularia* (Nematoda: Thelaziidae) of North America.” 67 (2), 192–200.

(133a) In this study of the psammon [sandy beach] in Douglas Lake, Michigan, very brief reference is made to the presence of small nematodes as very common constituents of the sand populations.

R.T.L.

(133b) Webster places in a new subgenus of *Polymorphus* those species which Van Cleave transferred from *Filicollis* [see Helm. Abs., 16, No. 160j]. This new group is named *Falsifilicollis* with *Polymorphus (Falsifilicollis) altmani* as type and includes also *P. (F.) sphaerocephalus*, *P. (F.) kenti* and *P. (F.) texensis* n.sp. which is now recorded from *Crocethia alba* in Texas.

R.T.L.

(133c) Mink, *Mustela vison*, in Texas are hosts of the strigeids *Neodiplostomum lucidum* and *Fibricola cratera*. In *F. cratera* the holdfast organ may assume various shapes from transversely to longitudinally elliptical. The ventral sucker is larger than either the oral sucker or the pharynx. The extent of the vitellaria is variable; they may pass into the hindbody to the level of the yolk reservoir, but tend to be restricted to the forebody. In this respect, the genus *Fibricola* is distinct from *Neodiplostomum*. P.A.C.

(133d) Chandler describes *Schistotaenia macrocirrus* n.sp. from the small intestine of the grebe *Podilymbus podiceps* in Ohio. It can be distinguished from other species by the enormous size of the cirrus, by the head armature and by the number of the testes. *S. tenuicirrus* n.sp. from *Podilymbus podiceps*, *Colymbus auritus* and *Corvus brachyrhynchos* in various States, has a slender cirrus and small cirrus-sac. There are 26 rostellar hooks and 44-46 testes in two groups. A key is given for the identification of the species of *Schistotaenia*. P.A.C.

(133e) Reid records the presence of a pair of penetration glands in the mature onchosphere of *Raillietina cesticillus*, *Choanotaenia infundibulum*, *Moniezia expansa* and *Hymenolepis* sp. They contain refractive granules and a secretion is liberated through small pores. When the embryo is actively penetrating tissue by means of the embryonic hooks, this secretion appears to be expelled. P.A.C.

(133f) *Physaloptera buteonis* n.sp. is described from the ventriculus of *Buteo jamaicensis borealis* in Wisconsin. There are didelphic uteri in the female. *Physaloptera apivori* Desportes, 1946 is considered to be a variation of *P. alata*. P.A.C.

(133g) Rausch describes *Andrya ondatrae* n.sp. from *Ondatra zibethica* in Ohio. Distinguishing features are the prominent ventral excretory canals and the presence of numerous testes extending up to the canals and sometimes overlapping them. P.A.C.

(133h) Tiner gives a new description of *Rictularia coloradensis* slightly emended to include material collected from *Peromyscus maniculatus*. The males have three fans anterior to the cloaca, the largest of which measures 59 μ long by 19.6 μ high; the spicules are unequal and smaller than previously described. Female worms, however, could not be distinguished from previous material. *R. halli* is incorporated within the species *R. citelli*, while *R. nana* is probably a synonym of *R. macdonaldi*. From study of a considerable amount of material from various hosts, he believes that the number of precloacal fans in the male worm is very variable and has no taxonomic significance. P.A.C.

134—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. LANE, C., 1948.—"Bancroftian filariasis. Biological mechanisms that underlie its periodicity and other of its clinical manifestations." 41 (6), 717-784.
- b. ROCHE, P. J. L., 1948.—"Human microcoeliasis in Nigeria." 41 (6), 819-820.
- c. LOVETT-CAMPBELL, A. C., 1948.—"A note on bilharziasis in West African troops." 41 (6), 821-822.
- d. PERRY, W. L. M., SEWELL, P. F. J. & HAWKING, F., 1948.—"Preservation of pathogenic organisms in a frozen condition for several months." [Demonstration.] 42 (1), 10.
- e. TAYLOR, E. L., 1948.—"A culture method for *Lymnaea truncatula* the intermediate host of the liver fluke *Fasciola hepatica*." [Demonstration.] 42 (1), 12.
- f. DUKES, C. E. & MORGAN, C. N., 1948.—"Double carcinoma of the rectum and rectosigmoid colon, with amoebiasis, schistosomiasis and benign adenoma." [Demonstration.] 42 (1), 14-15.
- g. REWELL, R. E., 1948.—"Diseases of tropical origin in captive wild animals." 42 (1), 17-25. [Discussion pp. 26-36.]
- h. WATSON, J. M., AZIM, M. & HALAWANI, A., 1948.—"Investigations on the anti-bilharzial action of miracid D (nilodin)." 42 (1), 37-54.
- i. BROSIUS, O. T., THOMAS, E. E. & BROSIUS, B., 1948.—"*Capillaria hepatica*. A case report." 42 (1), 95-97.

(134a) In this lengthy paper, which is presented under eight sectional headings, Clayton Lane reviews critically (Section I) the current theories which have been put forward to account for the phenomenon of microfilarial periodicity. The author holds that these theories are supported by insufficient controls or lack them completely. In Sections II to V, the author's

theory of cyclical parturition by the adult female worms is re-stated and reconsidered in the light of a study of new material comprising a large collection made by the late Professor F. W. O'Connor, of which 58 illustrations are presented. The results of his findings are summarized as follows:—"In the periodic type of infection the nightly rise in the microfilarial blood tide is due primarily to synchronized parturitions by female worms, which probably precede the rise of the tide by a few minutes. Provided they are not overtaxed, this rise is modified or annulled by the active cells of the host's macrophage system recruited in the lymph tract and lungs. This repressive action, called into being by adult, and especially by larval, worms results in an excess of lymph protein, which excess sets going in limbs, scrotum and mammae the changes that give rise to hydrocele or elephantiasis. The fall of the microfilarial blood tide is due to the destruction of the nightly brood in liver, spleen and adrenals, probably in lymph nodes and possibly elsewhere; the normally high (and locally innocuous) protein content of visceral lymph is not likely thereby to be significantly and harmfully raised." In Sections VI and VII respectively the bearing of the mechanisms of host and parasite on diagnosis and on treatment is discussed.

J.J.C.B.

(134b) Roche records the occurrence for the first time in man in West Africa of a microcoelid. The parasite was found in a microscopical section of liver. The eggs measured 42μ by 24μ . It is provisionally diagnosed as "a species of *Dicrocoelium*, probably *D. dendriticum*".

R.T.L.

(134c) Of 532 soldier recruits admitted to a hospital in Northern Nigeria in 1940 to 1942, 59 had *Schistosoma haematobium*, 11 had *S. mansoni*, and 4 were infected with both species. 60% of these infected persons had concomitant hookworm and ascarid infections. In an endemic area of bilharziasis in the province of Sokoto, a bilharzial appendix was found in 57% of 35 appendicectomies.

R.T.L.

(134g) In this outline of infections found at the Zoological Society's Gardens in animals from the tropics, a table lists 21 mammalian species in which microfilariae were found during 1925 to 1939. Coenurus in the brain of ungulates was rare: a case occurred in *Antilope cervicapra*. Adult filariae were common in birds, and *Diplotrichaena* in the air-sacs were to be expected in the occipital blue pie (*Urocissa melanocephala occipitalis*); the infected birds usually die suddenly and unexpectedly. Clinical hookworm infection was observed in a gorilla, and heavy infestations with threadworms were common among the chimpanzees.

R.T.L.

(134h) [A fuller account of this work has been published by the Ministry of Public Health, Egypt. For abstract see below No. 141.]

(134i) A clinical report is given of a Panamanian woman admitted to hospital with agonizing epigastric pain of three days' duration following a meal of fried beef liver. The faeces contained mucus, hookworm eggs and numerous bile-stained eggs identified as those of *Capillaria hepatica*. The hookworms were removed by oil of chenopodium. Two subsequent stool examinations were negative for *C. hepatica*.

R.T.L.

135—United States Naval Medical Bulletin.

a. MURRAY, W. D., 1948.—"Filariasis studies in American Samoa." 48 (2), 327-341.

(135a) 19.1% of 5,144 Samoans in 31 villages were found to have microfilariae in their blood. It is claimed that average worm counts per slide give a better index of the filariasis situation than the percentage of positive individuals. Samoans with elephantiasis have a considerably higher rate of circulating microfilariae than those without elephantiasis when comparable age and sex groups are considered.

R.T.L.

136—Veterinary Medicine.

a. CHADDOCK, T. T., 1948.—"Disease outbreak in foxes due to insanitary environment." 43 (3), 124-125.

(136a) Heavy infestation with *Ancylostoma caninum* and moderate infestation with *Eucoleus aerophilus* was found post-mortem in a fox from a well known fox ranch in one of the

Maritime Provinces of Canada, during an investigation into an outbreak of disease. The conditions were very insanitary and there was much inbreeding. The losses are attributed to vaccination against distemper of animals suffering from parasitism and malnutrition. R.T.L.

137—Veterinary Record.

- a. LE ROUX, P. L., 1948.—“Disease and the epidemic: the host, parasite and environmental factors.” [Correspondence.] 60 (29), 359.
- b. WARE, F., 1948.—“Disease and the epidemic—the host, parasite, and environmental factors.” [Correspondence.] 60 (30), 375.

(137a) LeRoux has made observations which tend to show that temperature and not merely the presence of intermediate hosts is the important factor which governs the distribution, seasonal incidence, rate of spread, and intensity of infection of tropical diseases of man and animals. As water and earth temperatures are materially affected by hours of sunshine and may often be much higher than the mean air temperature in the same locality, the temperature of the water in which the African intermediaries of various schistosome species live is an all-important factor. He concludes, therefore, that more attention should be given to climatology as a factor in the control of certain infections in the tropics. R.T.L.

(137b) Ware, referring to leRoux's letter [see preceding abstract] on the influence of environmental factors on host and parasite and the necessity of further study on climatology in relation to disease control, contrasts the widespread occurrence in India of several species of *Schistosoma* in domesticated animals and their absence in man. R.T.L.

NON-PERIODICAL LITERATURE

- 138—*DURIN, L., 1948.—“Sur la toxicité de la phénothiazine.” Thèse, Lyon.

Durin confirms the value of phenothiazine in eliminating strongyles from horses, but finds the risk of poisoning to be greater in young or anaemic animals with heavy worm burdens. Use of the drug should be restricted to cases of strongylosis which are refractory to most other anthelmintics. It can also be used in small doses as a preventive. [Abstract prepared from a summary in *Bull. Acad. vét. Fr.*, 1948, 21 (4), 138-139.] E.M.S.

- 139—PEARSE, A. S. [Editor], 1948.—“Zoological names. A list of Phyla, Classes, and Orders.” Durham, N.C.: American Association for the Advancement of Science, Section F. 3rd edit., 24 pp.

- 140—STITT, E. R., CLOUGH, P. W. & BRANHAM, S. E., 1948.—“Practical bacteriology, hematology and parasitology.” Philadelphia: Blakiston Company. 10th edit., xiv+991 pp., \$10.00.

- 141—WATSON, J. M., AZIM, M. A. & HALAWANI, A., 1948.—“Investigations on Miracil D (Nilodin) and its effect on human bilharziasis.” Ministry of Public Health, Egypt. Cairo: Government Press, 70 pp.

Trials with Nilodin (Miracil-D) as an oral treatment for schistosomiasis described in *Trans. R. Soc. trop. Med. Hyg.*, 42 (1), 37-54 [see above No. 134h] are now reported in greater detail. Although immediate toxic symptoms are not serious, the drug is a slow-acting poison and is not yet considered safe to administer to outpatients. In experimentally infested animals, 5 doses of 40-50 mg. per kg. body-weight given daily or on alternate days caused the disappearance of viable eggs and symptoms, while smaller doses gave inconclusive results. In clinical trials, although there is marked improvement, a complete cure is not usually attained. The drug is erratic in action and does not appear to affect immature worms. R.T.L.

*Original not available for checking or abstracting.